

MaxAir

Fan Wall Solution- Modular Indoor Air Handling Unit (AHU) for Data Center
Expandable Cooling Capacity: 200/400/600kW



MaxAir

Product Overview

MaxAir is the modular air handling unit (AHU) in PowerOne™ solution. The modularity features the fitness in retrofit and new construction projects while the high water temperature design changes fundamentally the usage of free-cooling and significantly reduces the system water flow, leading to a massive reduction of energy consumption and the size of the piping system.

Being an important part of PowerOne™ solution, MaxAir pursues the solution concept and leverage the best of it to serve as a reliable friend to your IT equipment.



Excellence in Design

Energy Efficiency

Innovative Operating Conditions

The innovative 19/35°C supply and return temperature not only broadens the delta temperature to 16°C maximum but expands the usage of free-cooling significantly, in which condition massive energy consumption is saved and the size of piping system is reduced as the water flow highly decreases.

Supply temperature can be kept above the dew point with the high water temperature design to avoid condensation and fan water blowing.

Data Center in New York -IT Load: 2,250kW

It is only when the outdoor temperature is higher than 30°C that the chiller is required to provide the full cooling capacity. When outdoor temperature is below 14°C, full free cooling can be realized, and when it is higher than 14°C, free cooling can supply the insufficient cooling capacity, which brings the total period of free cooling to 98%, reducing the annual power consumption of the cooling system by 60%.

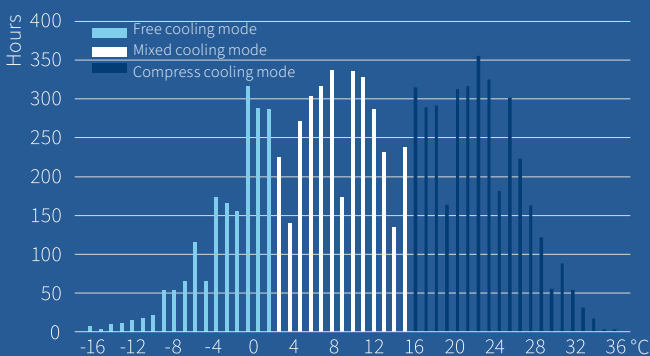


Fig.1 Working hours of outdoor units with inlet/outlet water temperatures 18/12°C

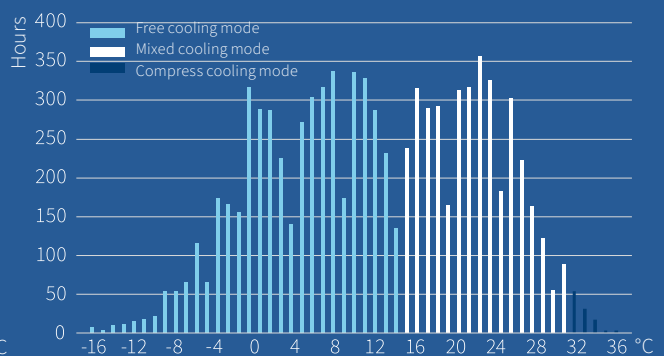


Fig.2 Working hours of outdoor units with inlet/outlet water temperatures 35/19°C

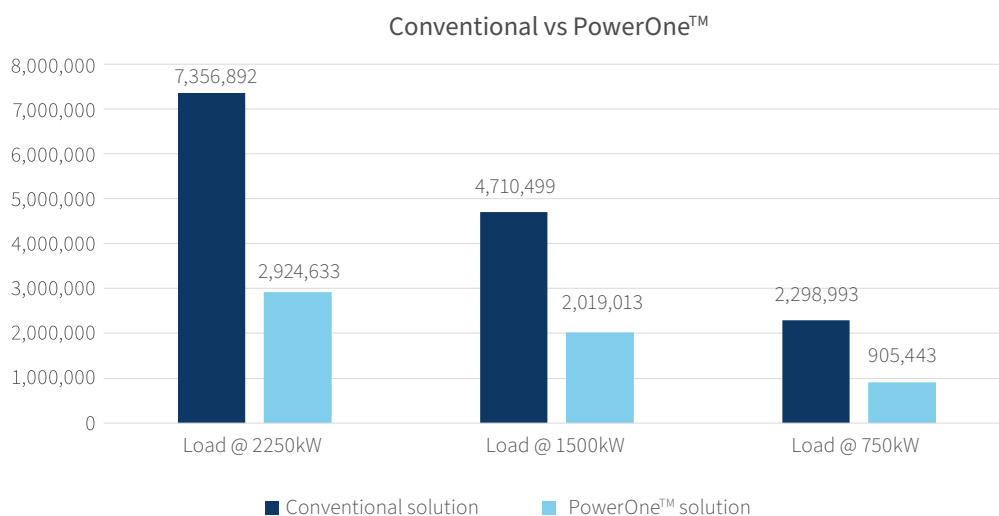


Fig.3 Annual power consumption comparison

Excellence in Design

Energy Efficiency

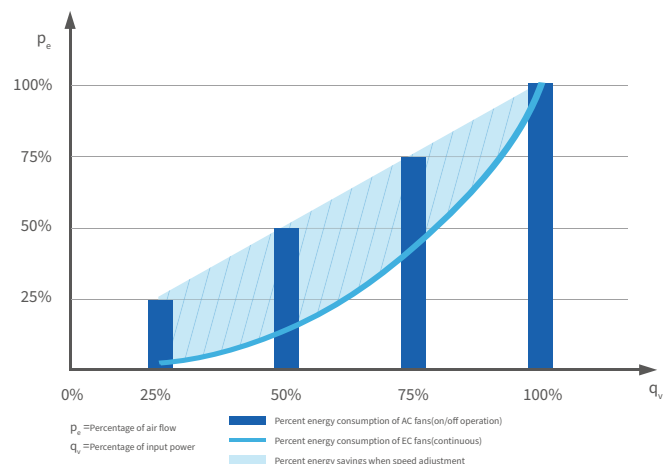
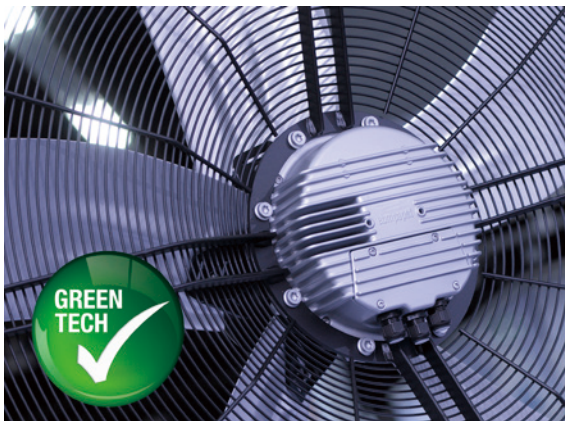
Efficient Components

VFD control

VFD control can realize real-time dynamic adjustment in changing environment and cooling demand.

EC Fans

- MaxAir uses high-efficiency EC fans and the power consumption of the fans is only 30% of that of ordinary AC fans. When the indoor load drops, the fan speed decreases.
- Compared with the under floor air supply, the pressure is significantly reduced. To achieve the same air volume, the energy consumption required is only about 80% of the original.



Self Optimization

The intelligent control system gives the unit the ability of self sensation and judgment. This autonomy can achieve self-regulation according to the environment and temperature field conditions to remain in the state of optimal operating performance.

Sustainability

- PowerOne™ delivers efficiency at any load in any climate and regardless of location to support your stewardship goals.
- Utilize up to 80% less energy and 85% less water to reduce resource usage.
- Reduce environmental impact and lower your Total Cost of Ownership (TCO).

Excellence in Design

Flexibility & Scalability

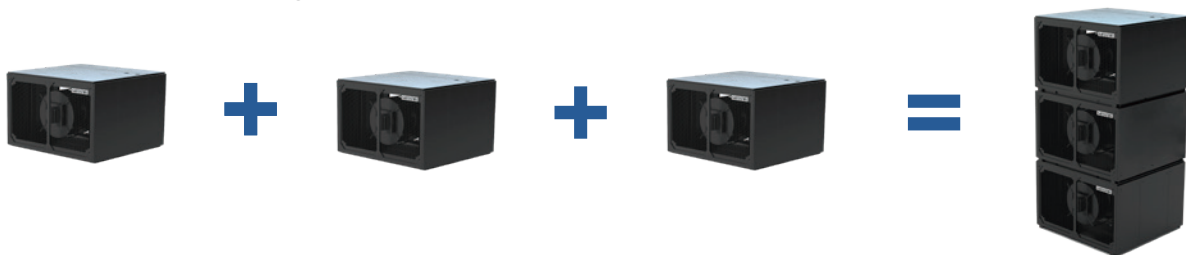
Stackable Modularity

Flexible Layout

Modules can be deployed horizontally or vertically to adapt to project-specific room size and different site conditions which is not only applicable for new data center but also for retrofit.

Scalability

Allow clients to 'pay-as-grow' which means cooling capacity can be expanded gradually with business development to achieve on-demand cooling and initial investment reduction.



Easy Installation & Maintenance

Transportation

The small size design not only fits the container, realizes stacking transportation and reduces transportation costs but also enables easy handling.

Installation

Smart cube design does not require on-site installation of redundant parts which saves time and labor at the job site. Standardized water inlet and outlet pipes can be installed with only threads. Universal frame is easier to disassemble and combine.

Maintenance

- The maintenance space is reserved inside, which is convenient for engineers to operate internally. No maintenance dead angle of fan wall will be missed;
- Maintainer friendly components design eases the work of disassemble and replacement.



Small Footprint with Maximum Cooling Capacity

MaxAir removes heat at the source and utilize 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 coils, absorbing up to 200kW of heat in only 1685mm of linear space.

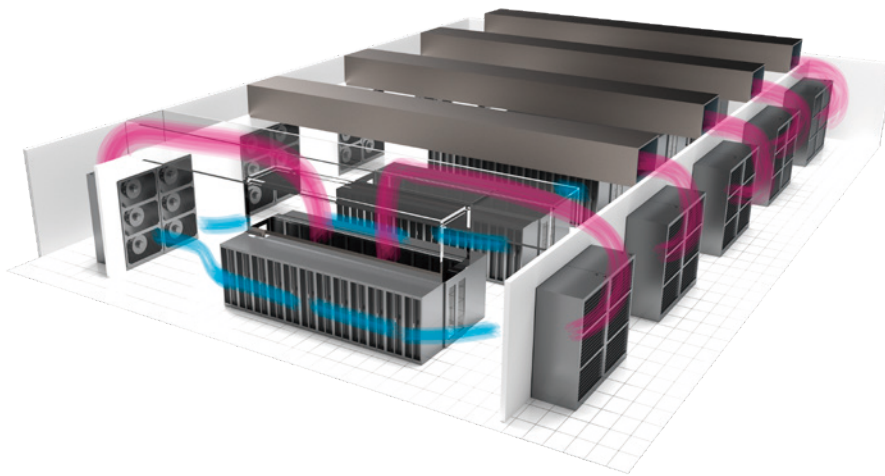
Excellence in Design

Reliability

Right Air, Right Place

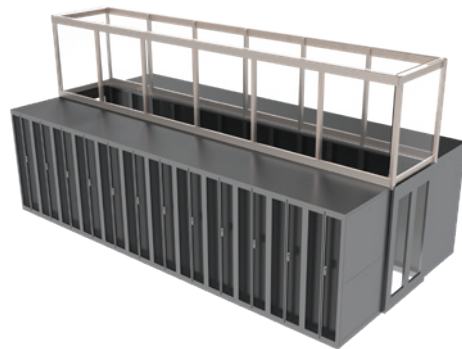
Not simply to cover the room, cold air is going to every corner where heat produced with the proper layout and infrastructure design. Heat is gathered and drawn through hot aisle while cold air evenly across servers and racks which creates an reasonable and accurate temperature field with no hot spot at different height level.

The system is not driven by the room temperature but synergized according to IT load and ambient temperature. This fundamental change will allow the system to operate proactively and predictably, increase the reliability and reduce the energy cost.



Hot Aisle Containment

- Avoid mixing of cold and hot air and increase cooling capacity and efficiency
- Support higher-density server applications
- Eliminate data center hot spots
- CFD simulation to optimize air flow
- Create cooler environment for operator as open space stays cold.



Variable Rack Densities

Accommodate a variety of rack configurations and dynamic density that is easy to change without reconfiguring the rack layout. The cooling systems respond in real-time to variable IT loads to serve each footprint independently.

Consistent Reliability

Modularization allows mutual backup between modules which enhances the ability of eliminating the impact of an unplanned outage or failure on computer equipment.

24*7 working mode combining with intelligent monitoring platform NetOne is able to realize prognosis and optimize the performance by ML creates a safe and reliable environment for IT equipments.

Project-Oriented Concept

Standard Model

Combining many advantages, standardized product is a good choice in most scenarios with the great feature which can meet rapid delivery and deployment.

Standard Pro

Unlock further options beyond the basic units for upgrading the standard units to the maximum extent.

Tailored Transformation

Highly flexibility of tailoring the project and positioning every detail need by absorbing your concept into the design to achieve fully coupling solution.



Modular V/W Coil

- Lower air velocity to the coil surface.
- Compact design to achieve maximum cooling capacity with minimum footprint.

Flexible Shapes

- Maximum utilization of the room space by tailoring the unit dimensions.
- Reasonable internal layout to guarantee the extra need of redundancy device and maintenance access.



Specification

Unit Mode		MAXAIR200	MAXAIR400	MAXAIR600
Air Supply/Return Scheme		Front supply, back return		
Total Cooling Capacity (1)	kW	200	400	600
Sensible Cooling Capacity(1)	kW	200	400	600
Water Flow(1)	m³/h	11.2	22.4	33.6
Water Pressure Drop(1)	kPa	30	30	30
Air Volume(1)	m³/h	45000	90000	135000
Total Cooling Capacity (2)	kW	220	440	660
Sensible Cooling Capacity(2)	kW	220	440	660
Water Flow(2)	m³/h	24.6	49.2	73.8
Water Pressure Drop(2)	kPa	120	120	120
Air Volume(2)	m³/h	43000	86000	129000
Power Source		400V/3Ph/50Hz or 60Hz		
Unit Max. Operating Ppower Input	kW	10.8	21.6	32.4
Unit Max. Operating Current	A	16.5	33	49.5
Humidifier (Option)	kg/h	8	16	24
Unit Piping Connection				
Condensing Water Drainage Φ	mm	22	22	22
Inlet/Outlet Water Pipe	in	2"	2"	2"
Unit Dimensions & Weight				
Width	mm	1685	3325	4965
Depth	mm	1610	1610	1610
Hight	mm	3352	3352	3352
Weight	kg	950	1900	2850

(1) Return air dry bulb temperature 38°C, RH35%, inlet/outlet chilled water temperature 19°C/35°C.

(2) Return air dry bulb temperature 35°C, RH30%, inlet/outlet chilled water temperature 16°C/24°C.

Unit Dimensions






Unit Dimensions	A (mm)	B (mm)	C (mm)	D (mm)	H (mm)
MaxAir 200	1685	/	/	1610	3352
MaxAir 400	/	3325	/	1610	3352
MaxAir 600	/	/	4965	1610	3352

AIRSYS One Solution™

One Solution is a comprehensive portfolio of solutions to serve critical facilities for Data Center and Telcos. In addition to providing heat transfer equipment, OneSolution also helps infrastructures to realize intelligent control, enhance reliability and improve performance.

One Solution Portfolio

PowerOne	EdgeOne	SiteOne	ZeroOne	NetOne
				
Hyper-Scale Data Centres	Edge Data Centres	Telecom Facilities	Data Center & High Heat Flux Electronic Devices	Monitoring and Management
IT Load 0.2 ~ 50MW	IT Load 30 ~ 200kW	IT Load1 ~ 200kW	Liquid cooling technologies for data centres, IGBTs, chips, power batteries, cryptomining, etc.	SYMPHONY CONCERTO SONATA

One Solution Value for Customers



All in One

Turnkey solutions for data center and Telcos. Lifetime on-site operational service.



Minimized CAPEX

Highly standardized structure, less components make the assembly process more efficient.



Optimized PUE & OPEX

Minimize or eliminate compressor-based cooling, lower the energy bill.



Shortened Project Cycle

BIM &CFD modeling at design stage, fast delivery, shorten the project cycle by 30-50%.



Maximized Uptime

Reliable components, key equipment redundancy. Proactive and predictive operation.



Visibility for Decision Making

Real energy consumption vs the system CAPEX could be simulated at various IT load.



High Scalability











Modular design, system could easily be scaled up. Shorten project cycle.













Smart Control

The proprietary software, AI based operation.

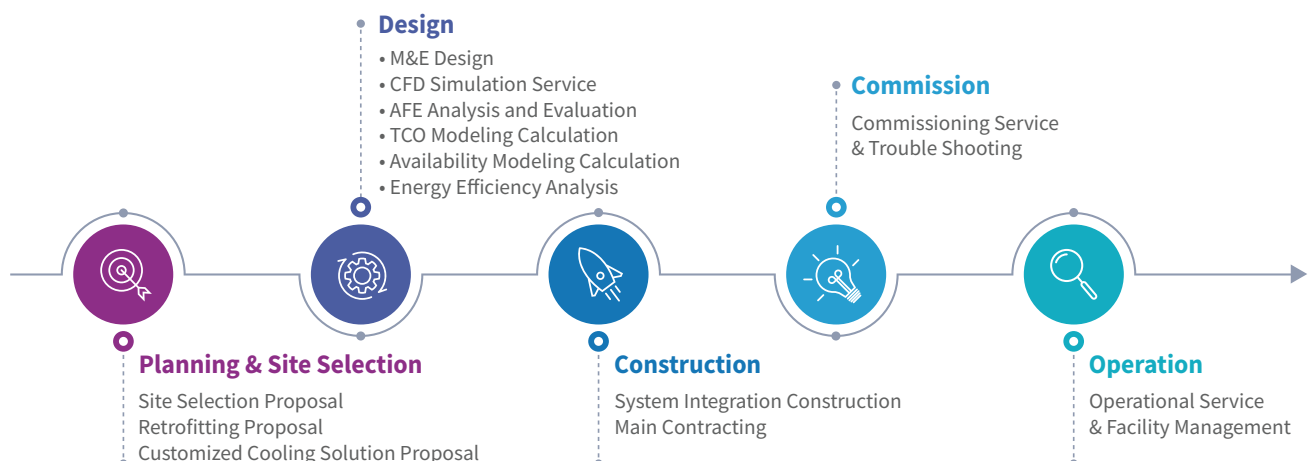
Product Matrix

										
	MaxAir	CHILLROW	ADIACOO	CRITICOO	OPTIMA2	EXCOOL	INNOVA	Container DC	UNICOOL	TELECOOL
	Air Handling Unit	Row Based Cooling Unit	Adiabatic Dry Cooler	Air Cooled Chiller	DXA/CW CRAC Unit	Indirect Adiabatic & Evaporative Cooling Unit	Modular DC	Modular DC	Packaged A/C with Free Cooling	Cabinet A/C
PowerOne	✓	✓	✓	✓	✓	✓	✓	✓		
EdgeOne						✓	✓	✓	✓	
SiteOne										✓
NetOne	SYMPHONY					CONCERTO				
ZeroOne										

										
	FREECOOL	METROCOOL	FREECOOL AD	FREECOOL HD	DATACOO	DATACOO PACKAGE	DATARAK	Spray/Immersion Racking System	Microchannel Heat Sink	Digital Boiler
	Ventilator	A/C for Industrial Environment	Adiabatic Evaporation Cooling Unit	Adiabatic Evaporation Cooling Unit	DXA CRAC	Packaged CRAC with Free Cooling	Integrated Rack DC	Spray/Immersion Racking System	Microchannel Heat Sink	Digital Boiler
PowerOne										
EdgeOne										
SiteOne	✓	✓	✓	✓	✓	✓	✓			
NetOne	SONATA							SYMPHONY/CONCERTO/SONATA		
ZeroOne								✓	✓	✓

All in One

One Solution offers a full range of professional services relating to the efficient cooling, spanning complete project timelines from the earliest design considerations through to servicing and maintenance of completed facilities.





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Product design and specification
prior notice

