

Liebert® DIRECT EVAPORATIVE FREECOOLING UNIT

What's Cool in the Data Center



BENEFITS

Highly Efficient

- Mechanical PUE less than 1.1
- Lower power consumption through an integrated bypass damper
- Self-optimizing controls reduce over-cooling and under-cooling

Greater Protection

- Less risk of hot spots, through advanced controls and rack inlet sensors
- Advanced monitoring and event notification
- Finely tuned controls for more consistent unit supply air temperature and minimized swings across component ranges

Lower Installation & Maintenance Costs

- Design minimizes required electrical infrastructure
- Typically eliminates the need for raised floor
- Controls require little if any customization

Insight for Action

- Simplified access to real-time data and trending
- Faster and easier system diagnostics

More efficiency. More choices. More experience.



Intelligent Controls.

The Direct Evaporative Freecooling Unit features integrated Liebert iCOM unit controls to maximize data center protection, efficiency and insight. Its advanced controls prevent over-cooling and under-cooling by self-optimizing thermal system operations using machine-to-machine communications and

advanced algorithms. Teamwork modes harmonize the multiple cooling units for higher efficiency and protection.

Local Service and Support. All of our solutions are backed by local customer engineers with decades of data center experience and a network of factory-trained service technicians.

Liebert Custom Air Handling Units

Our mission-critical air handlers with Liebert iCOM™ controls deliver efficient, reliable and cost-effective management of heat in large data centers.

We offer the largest selection of air handling solutions, combined with the expert guidance to help you select, implement and maintain the right technology to ensure **delivered performance for the lifetime of your data center.**

Liebert Direct Evaporative Freecooling Unit

The Liebert Direct Evaporative Freecooling Air Handler Unit delivers the lowest capital and operating costs, with a mechanical PUE of less than 1.1, streamlined installation and the industry's lowest peak power consumption.

Highly Economical. The solution mixes outside air with return air to deliver supply air within a wider range or acceptable temperatures and humidity. It can also use evaporative media or an optional trim cooling coil to further optimize cooling. It requires less electrical infrastructure and lower, annual water and electricity consumption than other large data center systems.

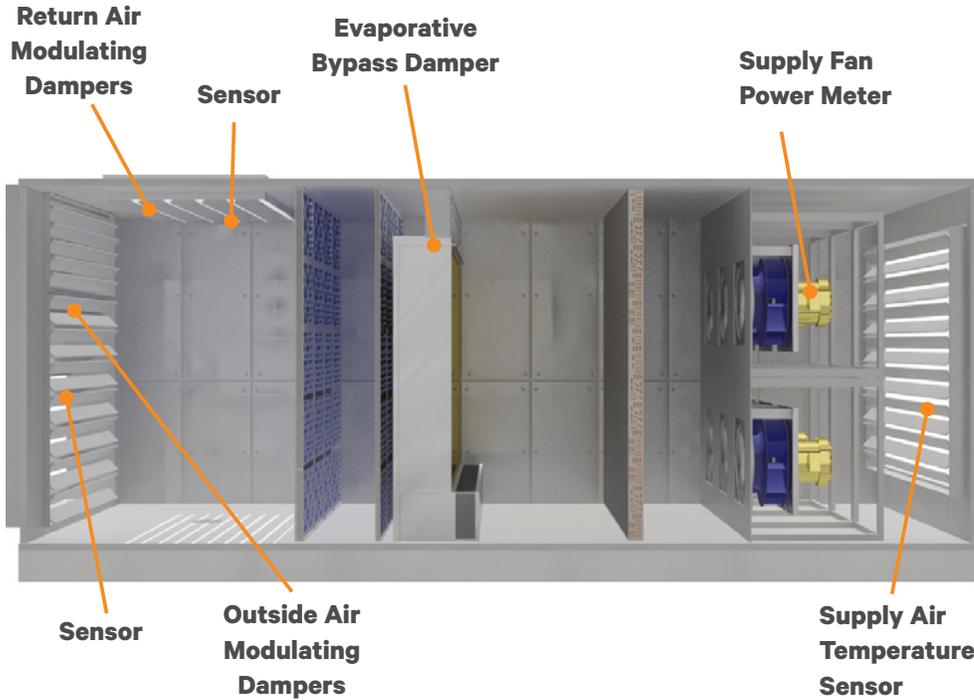
Key Attributes

- Very high efficiency systems with mechanical PUE <1.1
- Low kW per unit - downsizes electrical infrastructure
- Lowest cost per kW initial cost
- Lowest peak power consumption

Typical Deployments

- Large units deployed outside the data
- Slab floor with hot aisle/cold aisle row arrangement
- Full containment system with elevated supply and return temperatures

Advanced Controls For Efficiency, Protection and Insight



SYSTEM CONTROL STRATEGIES

- Flooded room with hot aisle containment
- Coordinate units for standby operation to prevent fighting
- Monitor server fan power consumption to minimize site power consumption

UNIT CONTROL STRATEGIES

- Unit capacity controlled to supply air setpoint range
- Power metering on supply fan, pumps, and exhaust fan for energy optimization
- Fan speed controlled by rack inlet temperature sensors

Liebert® Direct Evaporative Freecooling Systems offer the lowest large scale thermal management system efficiencies possible. Advanced algorithms and unique design features provide a level of control not easily achievable on competitive systems. Liebert iCOM™ control algorithms continuously process readings from the rack inlet sensors to ensure optimal air flow through the

system while supply air sensors are used to control the unit cooling capacity. Dampers and exhaust fans are automatically adjusted by the Liebert iCOM unit control, which also harmonizes the operation of multiple air handling units to eliminate conflicts in temperature, airflow, and humidity.