

TODAY'S ENERGY SAVING AND WATER-FREE DATA CENTER



LIEBERT® DSE™ FREECOOLING SOLUTION 250KW

FACTS

Cooling equipment accounts for as much as **40%** of data center operating costs. A 1 MW data center using a chilled water cooling system with a water-cooled chiller uses around **6.75 million gallons** of water annually.¹

CHALLENGE

Colocation, cloud hosting and other large data centers need cooling solutions with low total cost of ownership - solutions that save energy, eliminate water usage, reduce risk and simplify thermal management.

SOLUTION

The **Liebert® DSE™ Freecooling Solution** is the world's most efficient and reliable water-free cooling system for data centers. The Liebert DSE 250kW split-system is highly efficient, uses no water, is rapidly deployable and has an attractive total cost of ownership. It uses the proven pumped refrigerant economization technology from Vertiv deployed in more than 6000 installations worldwide.

The Liebert® DSE™ 250kW is the world's most reliable and efficient water-free cooling solution for colocation, cloud hosting and other large data centers. The split-system solution helps companies save money, reduce risk and more easily manage their data centers. Offering superior flexibility, the Liebert DSE 250kW solution can be applied in multiple configurations, including perimeter, gallery and full-face discharge airflow. It has a reduced outdoor footprint for the condenser/economizer package, making it ideal for multi-story applications.

High Energy Efficiency

- New DSE Optimization improves efficiency by up to 50 percent
- Highly efficient in low load/part load conditions
- Annual mechanical PUE of 1.05 - 1.20
- Low max kW for more available IT power

Easy Servicing

- Servicing from non-data center side of unit
- No need to enter the data center
- Economization pump is virtually maintenance free
- No outside air dampers to service or outside air filters to replace
- No water usage or related treatment and maintenance costs

Saves White Space

- High-density design supports loads of more than 250 watts per square foot
- Units can be placed side by side to provide a continuous wall of cooling
- Underfloor or full-face air discharge airflow configurations

Liebert MCV Outdoor Condenser and Refrigerant Pump Package



Liebert DSE 250kW Indoor Unit

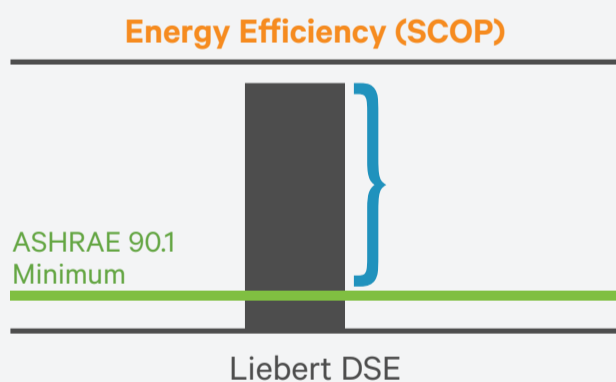


Easy to Manage

- Advanced Liebert iCOM™ monitoring and control algorithms for multi-unit teamwork, smoother transitions to economization and automated protection routines
- Multiple airflow configurations
- Easy integration to BMS using onboard protocols

OPTIMIZING YOUR DATA CENTER COOLING

1 SHATTER INDUSTRY EFFICIENCY STANDARDS



The **Liebert DSE** with pumped refrigerant economizer is up to 600% more efficient during cold ambient hours than the ASHRAE 90.1 minimum requirements for cooling equipment efficiency², and capable of achieving a money-saving **mechanical PUE of 1.05 - 1.20**.

2 CONSERVE WATER AND REDUCE COMPRESSOR RUNTIME

Reliable, low-maintenance pumped refrigerant economizer optimizes efficiency and performance

- No water usage
- No water treatment
- No outside air dampers and louvers to adjust and maintain
- Automatic switchover to maximize economizer hours
- Less refrigerant charge than traditional DX systems

Saves around 6.75 million gallons of water per year compared to a 1 MW data center using a chilled water cooling system with a water-cooled chiller¹.



3 SPEED DEPLOYMENT

The Liebert DSE 250kW provides a high-density footprint with three airflow options and features that speed deployment:

- Liebert iCOM controls provide unit-to-unit networking and fast integration with building management systems
- Separate fan and coil sections
- Split system with ability to place units side by side
- All service from non-data center side
- No hoods, ducts, dampers outside or other components to install, seal or weatherproof
- Multiple airflow configurations



4 SAVE MONEY

The **Liebert DSE 250kW** saves money with a high-capacity footprint supporting densities exceeding 250 watts/square foot and additional airflow to support a lower ΔT . Advanced Liebert iCOM controls manage airflow and temperature based on indoor and ambient conditions to find the "sweet spot" for efficiency and protection

Peak Power Usage and ΔT				
Cooling Unit ΔT	Capacity (kW)	Indoor Fan kW	Total Peak kW	Peak Cooling PUE
20	234.6	31.1	96.4	1.41
22	250.4	20.2	86.0	1.34
25	262.3	18.0	83.4	1.32
28	262.3	15.9	82.1	1.31
32	254.4	10.1	76.9	1.30
35	247.8	7.6	74.3	1.30

Wasted Fan kW

Balanced "Sweet Spot"

High Efficiency, High Return Air

LEARN MORE: For more information on the Liebert DSE 250kW, visit VertivCo.com

Sources

¹ Uptime Institute, June 2016

² ASHRAE 90.1 minimum standards at full-load 95F outdoor ambient conditions