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Liebert®

HPC-S™ Free Cooling Chiller

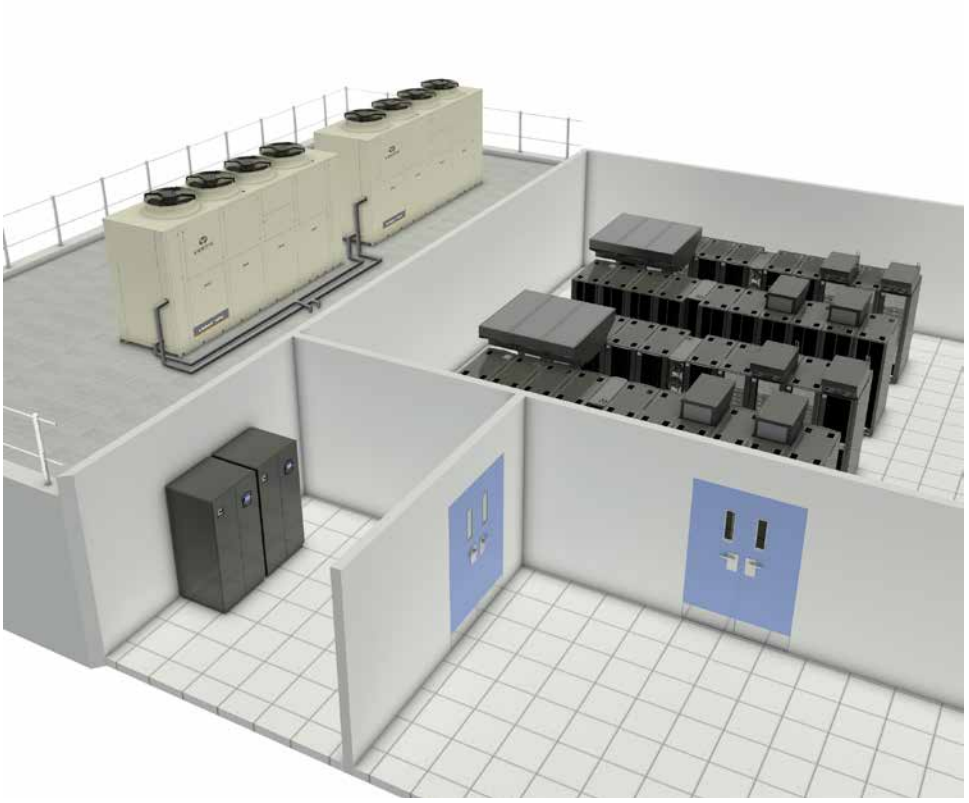
Designed for the Efficient Cooling of Small Data Centers

Getting To A PUE Of 1.2

Free cooling data center chillers are designed to efficiently supply chilled water to indoor data center thermal management equipment.

The integrated free cooling technology used by the Liebert® HPC-S™ Free Cooling Chiller allows it to cool water when the external ambient temperatures are below the chilled water return temperature. This reduces annual energy consumption of the entire chilled water system by over 30% in most applications, while improving system availability at the same time.

- The Liebert HPC-S Free Cooling Chiller provides reliable year-round capacity, regardless of the environmental working conditions, with extended high ambient capability and free cooling functionality that eliminates the need for low ambient compressor starting. The unit is equipped with the latest technology by using EC condenser fans, Copeland® scroll compressors and Liebert iCOM™ control system.
- The Liebert iCOM control system is easily networked to provide efficient control of the chiller plant without the need for a separate building automation system.
- Additionally, coupling the Liebert CRV™ Optimized Aisle Control™ with cold aisle containment and the Liebert HPC-S Chiller creates a system capable of achieving a mechanical PUE of 1.20. This configuration thus ensures that each watt of power is used to cool the servers, hence delivering maximum availability.
- The chiller operates with R410A refrigerant to meet today's data center demands by enabling businesses to operate with maximized availability and efficiency.



Liebert HPC-S Chiller features:

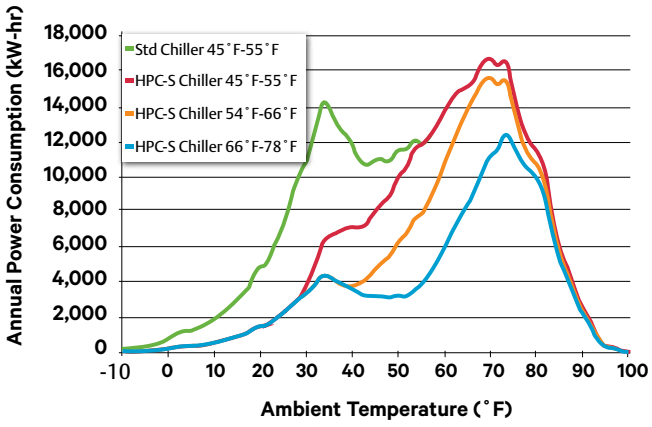
- **EC Fans** - High efficiency EC motors deliver a 25% reduction in energy consumption compared to traditional AC motors.
- **Liebert iCOM control** - Advanced unit and teamwork control to maximize energy efficiency.
- **Operation** - It operates at extreme ambient and water temperature conditions.
- **Free Cooling** - Integrated free cooling functionality delivers additional energy savings and greater reliability.
- **Refrigerant** - Optimized for R410A refrigerant.
- **Scroll Compressor** - Liebert HPC-S Chiller is equipped with Copeland digital scroll compressors to improve efficiency and reliability of performance.
- **Fast Start Ramp** - Liebert HPC-S Fast Start Ramp ensures full restoration of chiller capacity after 100 seconds from power re-start.
- **High Efficiency** - High efficiency design resulting from the use of a combination of the best technologies on the marketintegrated economizer, wide operating range, and EC condenser fans.
- **Extremely Low Noise** - Audible noise is minimized as a result of low-noise, HyBlade EC Fans.

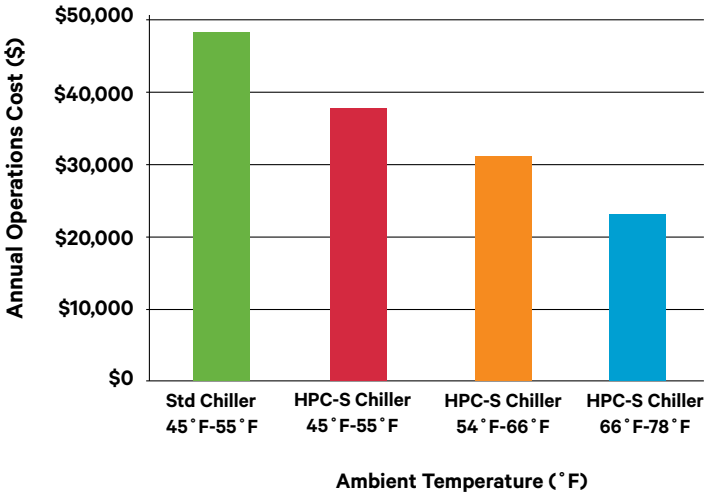
ACHIEVING EFFICIENCY AND ENVIRONMENTAL RESPONSIBILITY

Today, environmental responsibility is becoming increasingly fundamental for many organizations.

Liebert® HPC-S™ Free Cooling Chiller enables data centers to achieve increased efficiency while reducing environmental impact, through its ability to work in free cooling mode. This operation leverages the external environmental conditions to cool the water, thus requiring compressor operation only when the outside temperature exceeds the temperature of the water returning to the chiller. This occurs during more than 50% of the annual operating hours for most of the US.

Compressor operation is also used as partial back up during the partial free cooling mode. The total combined effect of the Liebert HPC-S unit's leading technologies delivers up to 40% annual energy savings over standard industry cooling chillers.



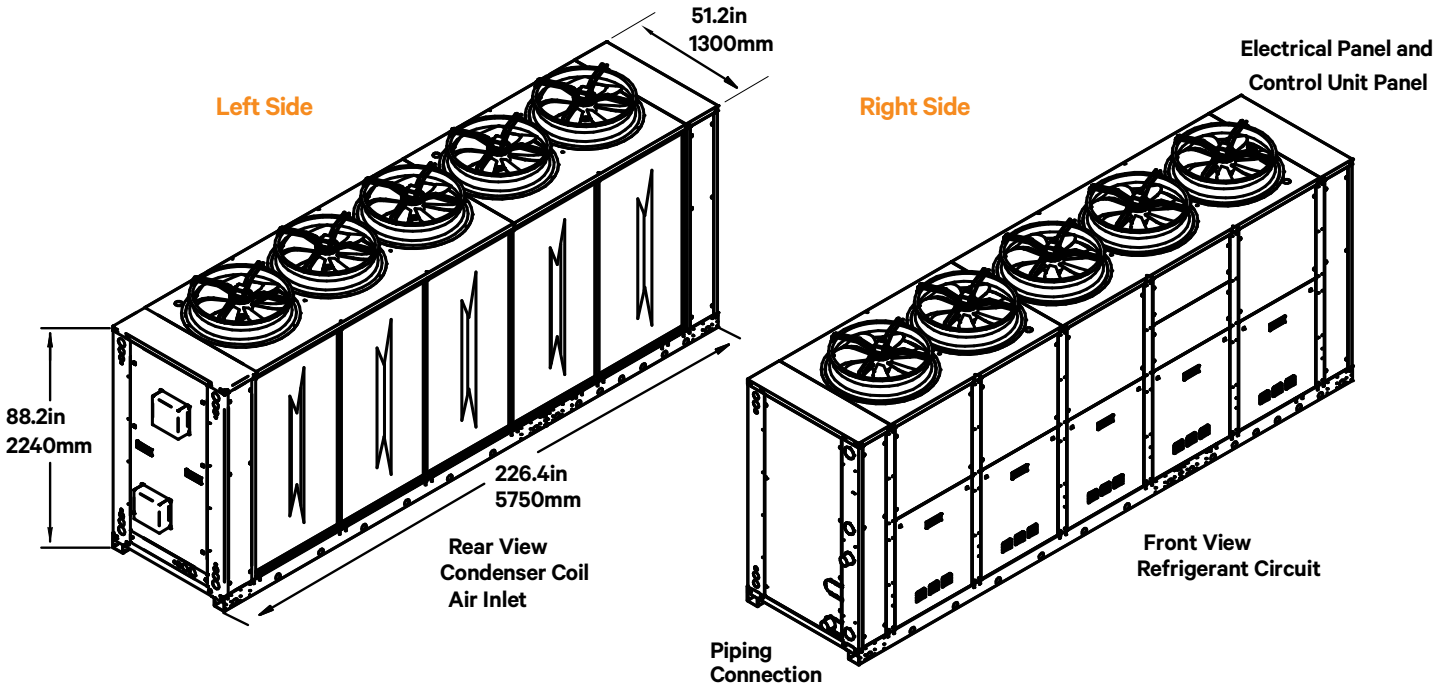


Depending on local ambient temperatures and operating temperature, Liebert HPC-S Chiller could consume thousands of kilowatts less energy than a standard chiller. This higher efficiency operation could result in thousands of dollars of energy savings every year.

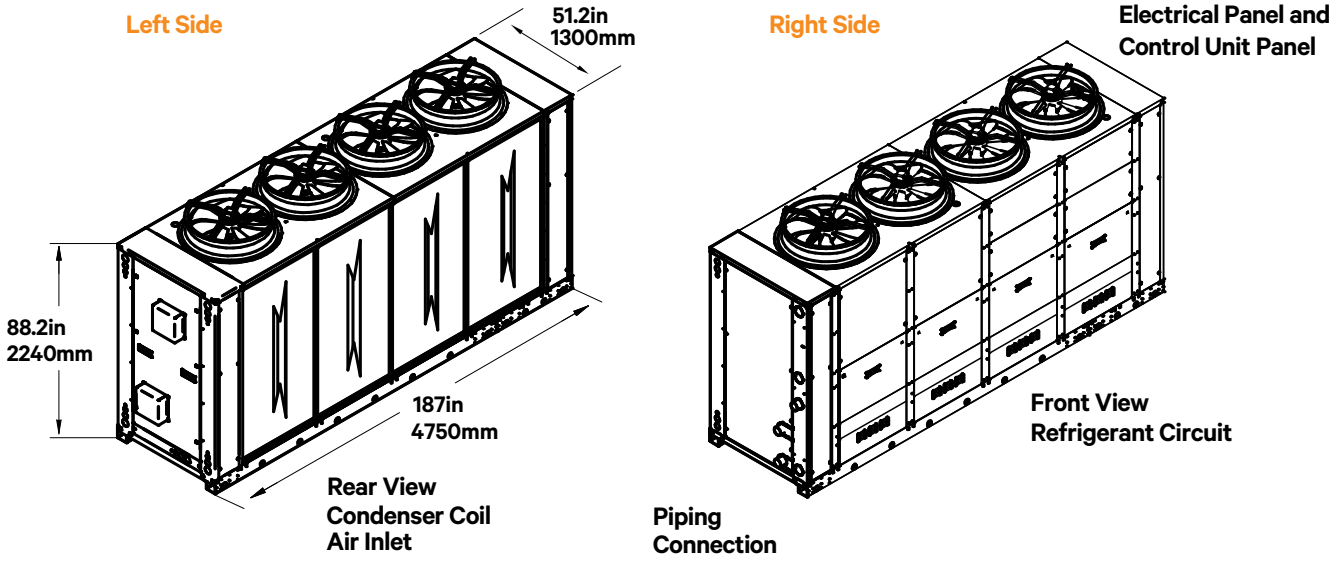
		FG0052	FG0080	FB0110
Capacity[1]		192 kW (55) tons	285 kW (81) tons	362 kW (103) tons
Power Consumption, kW		61 kW	99 kW	150 kW
Ambient Temperature for 50% free cooling		54°F (12°C)	51°F (10.7°C)	48°F (9°C)
Ambient Temperature for 100% free cooling		39°F (4.2°C)	35°F (1.9°C)	30°F (-1°C)
Annual savings with free cooling[2]	Chicago	$12,000	$16,300	$22,600
	Minneapolis	$11,100	$15,100	$20,900
	Denver	$12,700	$17,300	$24,100
	St.Louis	$8,700	$11,700	$16,200

[1]Capacity at 95°F ambient air, 56°F (13.3°C) leaving fluid temperature, 12°F (6.7°C) fluid temperature rise, and 20% ethylene glycol
[2]Assumes electrical power cost of $0.10 / kWh blended rate

FG0 080 & FB0 110 with Integral Free Cooling and Without Buffer Tank



FG0 052 with Integral Free Cooling and Without Buffer Tank



VertivCo.com | **Vertiv Headquarters,** 1050 Dearborn Drive, Columbus, OH, 43085, USA

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