VERTIV.

Liebert® PEX4™

35 - 120kW

Unsurpassed Thermal Management Solution with Premium Efficiency

Liebert® PEX4™ 35 to 120kW

Emerging Trends & Technology in Data Center Cooling

Hybrid infrastructure is a growing trend in the data center industry. Studies* predict that by 2025, 80% of companies will replace their traditional data centers with a hybrid design, which requires a more efficient cooling approach.

When it comes to thermal management systems, there are certain limitations in the fixed compressor or legacy variable systems as these cannot cope with extended evaporating temperatures and have finite compressor control during partial load.

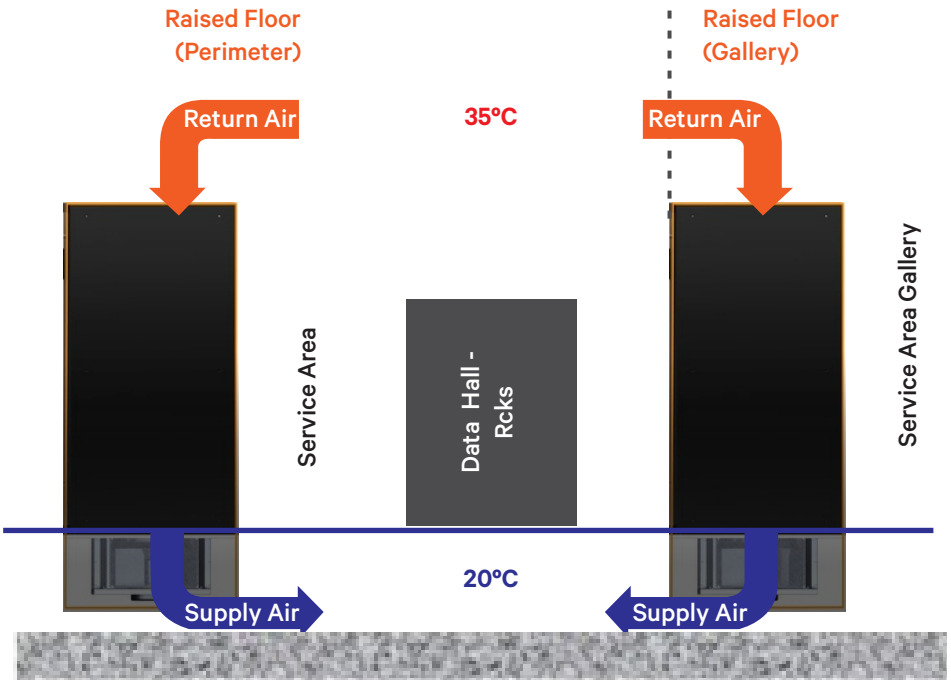
Below are some of the emerging trends in the data center trends thermal management space:

**Reference Source: (https://blogs.gartner.com/smarterwithgartner/author/kcostello/, 2018)*

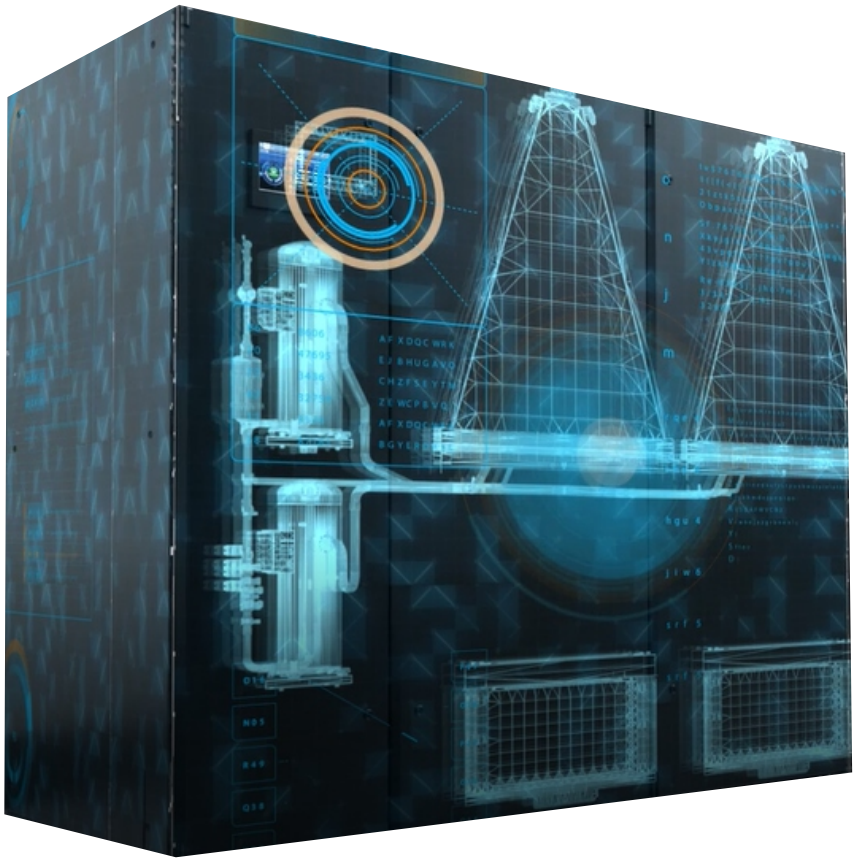
As server power consumption changes in proportional to computational loads, it affects the required airflow through the server.

Additionally, virtualization is commonly deployed to improve the server utilization ratio, which can result in varying power requirements. Thermal management systems must provide variable cooling capacity and variable airflow to properly match the variable power and variable airflow of today's technology rooms.

Data Center Trends	Data Center Cooling Needs
• Servers can work in wider temperature envelope. • Due to "Big data" higher density, virtualization arises, variable load profile increases. • Increased investment in data center efficiency.	• Conventional cooling solution need to follow new working envelope. • Delta T is a concern for new servers; part load optimization with precise environment is in high demand. • Adoption of a new design solution and the introduction of new component into the cooling unit .



- Increasing Delta T on the server actually augments server efficiency (less fan power).
- To optimize the cooling effect in IT infrastructure and energy efficient operation; higher working-temperature envelope is very useful.

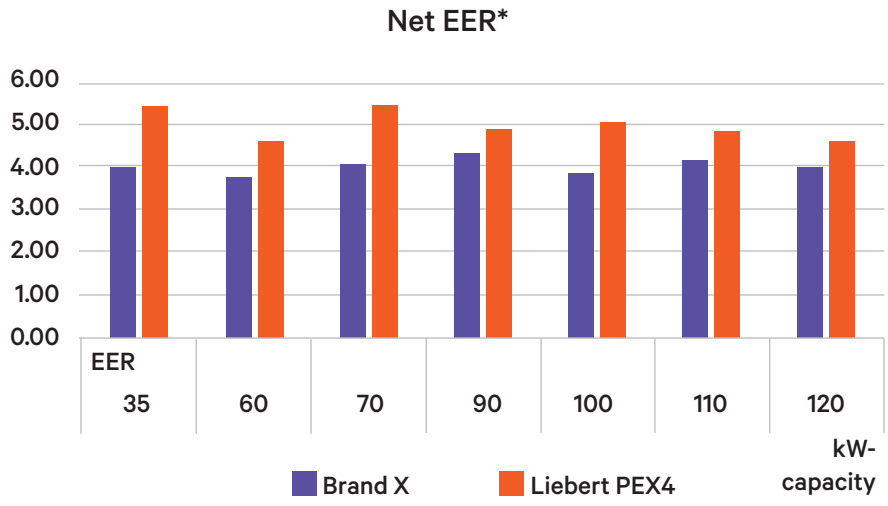


Introducing Next-Gen Thermal Management Solution for Data Center

Liebert® PEX4™efficiently reduces operating costs with enhanced capacity fit into compact footprint.

Combining the best accessories such as inverter compressor, EC fan, EEV & microchannel coil, Liebert PEX4 with superior technology allows modern data centers to enjoy abundant load variations with premium efficiency.

Premium Efficiency brought by VERTIV

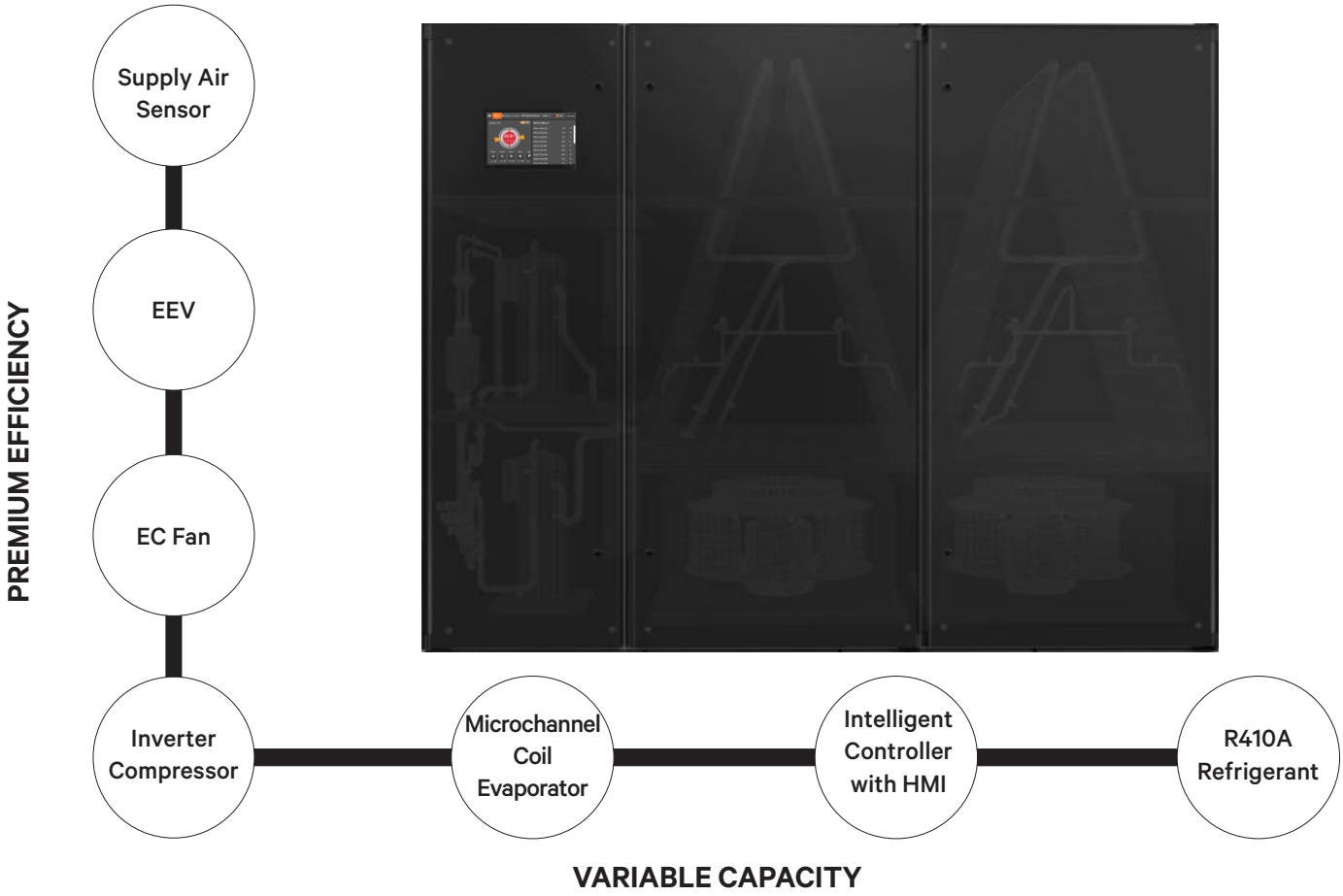


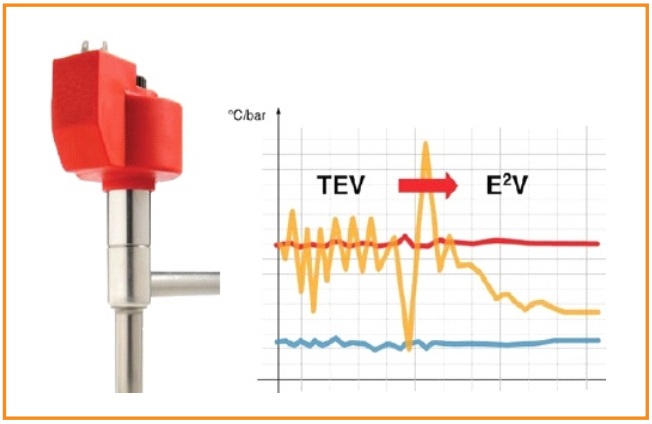
* EER is calculated at return air condition of 33°C RH & condensing temp of 45°C

Quick Facts

- Exceptional efficiency at partial load, almost 25% more efficient than other make.
- Regulation of the inverter driven compressor between 30 and 100% of the rated value.
- Microchannel based evaporator coil with multiple electronic expansion valves maximize heat transfer and minimizes power consumption.

Liebert® PEX4™ 35 to 120kW





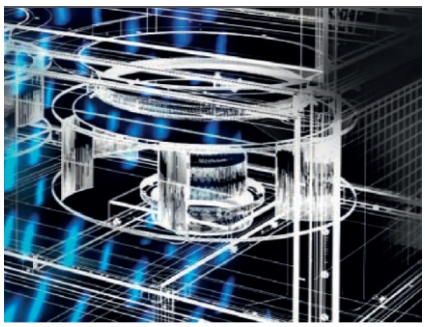
ELECTRONIC EXPANSION VALVE

Necessary for integrated and optimal variable capacity control.

Maintain constant superheat & dehumidification assistance.

EC Fan

- The unit is equipped with a direct, high efficiency, single inlet, backward curved, centrifugal plug type innovative EC fan(s).
- The EC fan technology regulates airflow and reduces the fan input power. In-floor configuration further reduces energy consumption in downflow units.
- Liebert EC 2.0 fan modulates the fan speed according to load density; saving nearly 30% of energy consumption.



Enhanced efficiency achieved with a new evaporator coil design
Introducing an Aluminium Microchannel Coil, first ever used in PEX design

- Microchannel coils are 40% smaller, 40% more efficient, and use 50% less refrigerant than standard tube and fin coils.
- Multiple micro channels improve heat transfer.
- Flat tube results in lesser air side pressure drop, less power consumption.
- Compact design & less also resulting in reduced unit weight.
- Each cooling module consists of a “V” shaped microchannel coil & is configured with two EEVs with common driver. More than 60kW capacity PEX4 unit does have two cooling modules with dual electronic expansion valves in each module with same driver arraignment for two EEVs.

Inverter Compressor

- Optimized variable speed design through efficient BPM motor, wide speed range 1000 ~ 7200 RPM for part load efficiency.
- Expanded operating envelope for a wide range of cooling applications also contributes to premium efficiency. Special care is taken for EMF with filter.
- Intelligent oil circulation logic during low speed performance & reliability.
- Coupled with environment friendly refrigerant (R410A) & EEV, premium efficiency is achieved as compared to legacy solution; part load COP as high as > 5.5.

Additional Features

- Steam Humidifier
- Infrared Humidifier
- One/Two Stage Heater
- Low Temp Kit
- Monitoring Device
- Smoke & Fire Detector

Liebert® PEX4™ 35 to 120kW

Smart and Intelligent Controller features a unique algorithm and touch screen display for managing PEX4 operation, ensuring maximum reliability under all conditions. The high-level monitoring of multiple units enables them to work together as a single system that optimizes room temperature and humidity.

Intelligent Thermal Controls for Smarter Management

Make smarter decisions in your critical infrastructure space with integrated intelligent controls for ease of management. The Liebert PEX4 is equipped with Intelligent Controls and the Liebert RDU, allowing users to easily manage multiple units and even 3rd party units across different (up to 32 units).

Via Liebert® RDU

Rotation Control | Cascade Control | Alarm Standby Control | Unified Control | Remote Sensor Control

Note: Liebert RDU to be purchase separately.

- Management environmental conditions i.e. temperature and humidity, leak, smoke, thermal group control, and digital inputs and outputs.
- Monitoring infrastructure and alarm management: Cooling unit, UPS, gensets, etc.
- Equipped with a built-in web server, eliminating the need of additional software installation
- Ability to network with other perimeter units, including other 3rd party cooling units

Via Daisy Chain

Rotation Control | Alarm Standby Control

Room Cooling | Row Cooling | Room Cooling | Row Cooling

- Up to 16 units can be configured in a team to rotate based on day and time.
- Units which are idle but ready become active in the event of an alarm condition in one of the operating units or based on a rotation schedule.

Technical Parameters

Parameters	P1035	P1045	P1050	P1060	P2070
Dimensions (W×D×H) (mm)			1330 × 995 × 1975		2430 × 995 × 1975
Operational Weight (kg)	425	430	460	465	750
	Test condition & Loading : RAT 35°C/26%RH, Condensing temp 45°C & 100% loading				
Net Sensible Cooling Capacity (kW)*	36.7	46.2	51.1	61.4	73.0
Air Flow (m³/h)	7400	9500	10600	12200	14800
No of Compressor** & Fan	1	1	1	1	2
EC Fan ESP (Pa)	Available ESP : 20 ~ 200; Standard for down flow: 20Pa & up flow: 50Pa				
Type of filter	Dry media type (G4 rating)				
Electrical Characteristics	380V ~ 415V 3P+N; 50Hz/60Hz				

Parameters	P2080	P2090	P2100	P2110	P2120
Dimensions (W×D×H) (mm)			2430 × 995 × 1975		
Operational Weight (kg)	755	760	780	785	790
	Test condition & Loading : RAT 35°C/26%RH, Condensing temp 45°C & 100% loading				
Net Sensible Cooling Capacity (kW)*	81.6	92.4	101.8	112.3	123.2
Air Flow (m³/h)	16900	19000	21200	22350	24400
No of Compressor** & Fan	2	2	2	2	2
EC Fan (ESP) (Pa)	Available ESP : 20 ~ 200; Standard for down flow: 20Pa & up flow: 50Pa				
Type of filter	Dry media type (G4 rating)				
Electrical Characteristics	380V ~ 415V ; 3P+N; 50Hz/60Hz				

Note:

- *Net sensible cooling capacity is calculated at above given condition.
- ** Scroll compressor driven by inverter drive; R410A refrigerant based compressor; Fan : EC fan.
- 1 or 2 stage heater & Infra red/bottle type humidifier are available on request.
- F5 filter is available on request.
- Specification are subject to change without any prior notice.
- DX Water Cooled and Dual Cool (DX+CW) units are available in selected models upon request.

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