

Liebert HPM Extended

When energy efficiency matters





Emerson Network Power, a division of Emerson, is a global company that combines technology with design to supply innovative solutions for the benefit of its customers.

Emerson Network Power is the leader in the “**business-critical continuity**” field, thanks to the company’s products and services.

Emerson Network Power’s broad technology base and global expertise support a full spectrum of enterprise-wide solutions for today’s vital business needs.



Regardless of your size, you can’t afford for your critical business systems to go down and you can’t waste time recovering your IT infrastructure after a disruption.

Leave that to us, the experts in *business-critical continuity*: from grid to chip, from the biggest to the smallest data centers, we are ready to serve your needs with the solutions we have developed.

More standardization, so you don’t need further budget allocations to install it. More simplification so you don’t need to be a specialist to get the best for your business. More support, so while you are enjoying doing business, we are protecting you.

That’s why we can say we OptimizeIT!

optimizeIT[™]
Infrastructure Simplified.
Support Unparalleled.

*Power Mode: cut running costs
by 30% utilising the maximum capacity of
Liebert HPM Extended*

*ECO Mode: cut running costs
by 50% due to the higher efficiency
of Liebert HPM Extended*



Liebert HPM: Indoor Room Cooling Chilled Water Units Extended Version With EC Fans



Liebert HPM Extended
Two separate modules: the most efficient
chilled water solution.

The Data Center environment is growing fast and energy efficiency is a critical success factor.

Emerson Network Power

is the cooling leader for Data Center applications since more than 40 years and is always striving to anticipate the future needs of its customers.

That's what was done with Liebert HPM Extended, the new series of high energy efficient floor mount precision cooling units developed by **Emerson Network Power** to allow maximum cooling capacity at minimum operating costs.

Liebert HPM Extended is the right solution whenever the energy efficiency is of the utmost importance, thus reducing the running costs of Data Center without impacting on the reliability is the first priority.

Incorporating the advanced iCOM controller, Liebert HPM Extended can accurately follow the heat load, while keeping the energy consumption to a minimum iCOM also allows for built-in redundancy.

Liebert HPM Extended, is designed to work at its maximum capacity for the entire lifetime.

For typical installation the unit works at nominal capacity (lower than the

maximum), allowing the maximum energy efficiency of the unit, but in case of an hot spot, or a unit failure in the system, the other units can increase their capacity (Power Mode) to compensate the temporary reduction in cooling availability. Liebert HPM Extended, operating in nominal condition has additional capacity available which can be automatically activated by the iCOM, control on demand, thus reducing the number of units required for redundancy purposes. The new Liebert HPM Extended range improves the standard in Precision Air Conditioning in terms of energy efficiency, space requirements and investment costs due to the enhanced design and airflow distribution.

Liebert HPM Extended series, offers units with rated cooling capacity from 30 to 200kW, and each model is available in two different cooling options in order to use the benefits of the new product range in all the application scenarios. The unit itself consists of two separate modules where one module includes filter, heat exchanger section and control and second separate module with high efficient EC fans.



Liebert HPM Extended Down

with fan modules installed in the raised floor, is the solution to give the best energy efficiency.

The fans module is installed in the raised floor and it supports the weight of the unit coil module. Adjustable feet are provided in order to suit the installation to different raised floor heights.



Liebert HPM Extended Down

Liebert HPM Extended UP

with fans module installed above the raised floor. This unit can be installed when we are looking for energy saving, but the raised floor height is too shallow to install the fans module in the raised floor. Liebert HPM Extended UP design, gives improved efficiency versus a traditional chilled water unit even when fans are installed above the raised floor.



Liebert HPM Extended UP

Liebert HPM Extended Application Scenarios

1st Scenario

Liebert HPM Extended DOWN

Unit installed within the data center room, with fans module installed in the raised floor.

The best solution in terms of energy efficiency for chilled water application.



2nd Scenario

Liebert HPM Extended UP

Unit installed within the data center room, with fans module installed above the raised floor.

Whenever the raised floor height is not enough to have fans in the raised floor, the best solution to maximize the efficiency.



3rd Scenario

Liebert HPM Extended In Service Corridor

The unit is installed within the data center service area.

The air delivery is from the rear of the fan module.

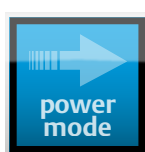
The conditioned air is delivered through the raised floor into the data center room. The air return from the data center is via to the top of Liebert HPM Extended unit.



The Main Benefits Of Liebert HPM Extended Can Be Highlighted In Two Different Ways Of Operation:

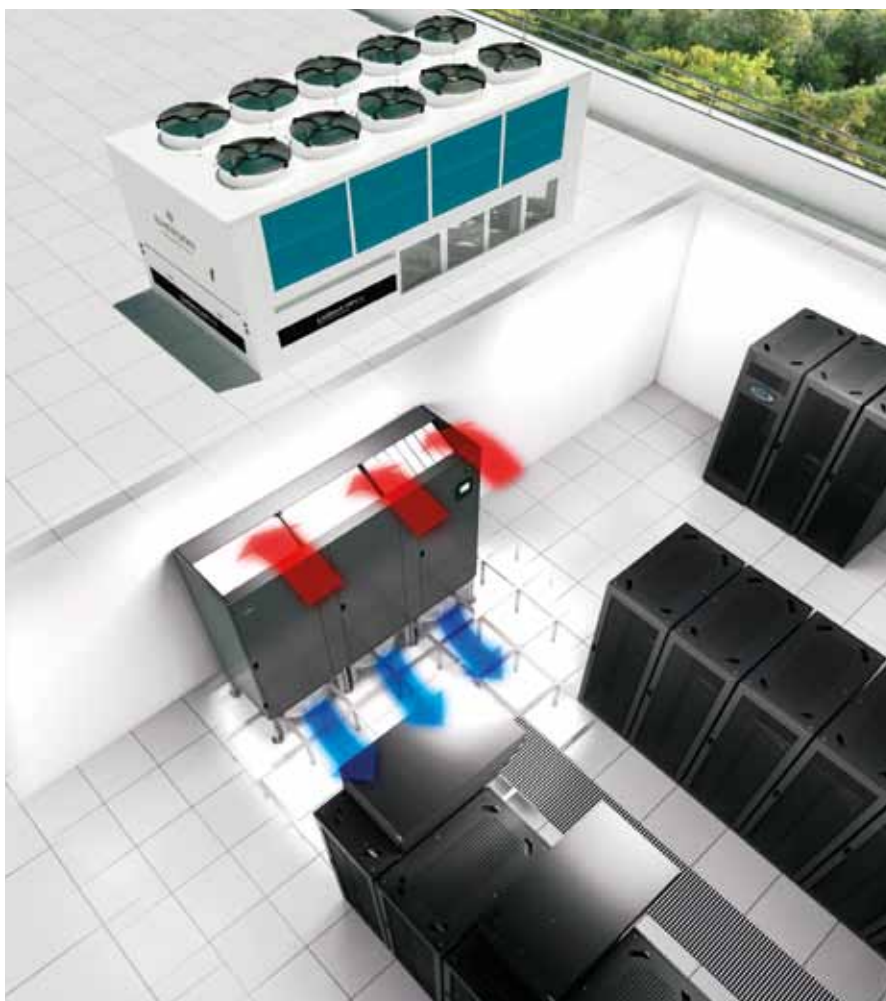
Eco Mode And Power Mode

A data center cooling design, can be handled with Liebert HPM Extended optimized for the optimum running conditions. In this way energy costs can be reduced by 50%. Moreover building cooling redundancy within the data center is simpler and need less capital investment. The Liebert HPM Extended units, in an emergency situation can run at maximum air flow. In this configuration the new design gives up to higher cooling capacity against conventional designs. This means that in the calculation of the redundant units, one third of the required units can be omitted by using Liebert HPM Extended units. Liebert HPM Extended allows to cut investment costs and running costs.



Power Mode

Together with benefits of better efficiency, Liebert HPM Extended can deliver more cooling capacity in the same footprint, reducing initial investment cost.





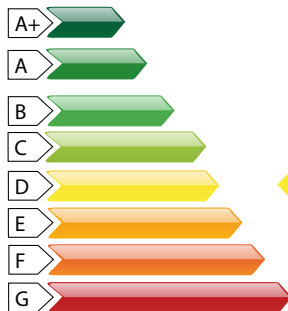
Eco Mode

Liebert HPM Extended can provide the same cooling as a standard unit, reducing the running costs.

The extended coil design allows to dramatic reduction in the pressure drop across the chilled water coil and the air filters, therefore reducing the overall unit energy consumption. The new fan placement allows an improved air flow distribution and so further improving the units efficiency. Overall compared to a traditional chilled water floor mount unit, the Liebert HPM Extended can reduce the power consumption by around 50%.

1st - Precision Cooling Unit with AC Fan

Lower Running Costs



Higher Running Costs



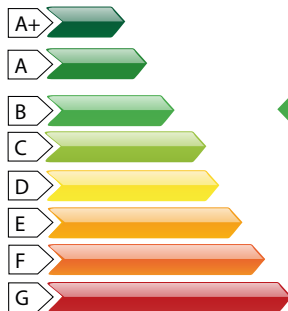
Technical Data

Air	32° 30%
Water	14° C 20° C
Net Cooling	120 kW

Common Precision Cooling Unit with fixed fan speed. Traditional cooling approach.

2st - Liebert HPM Unit with EC Fan

Lower Running Costs



Higher Running Costs



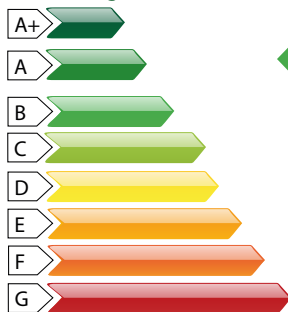
Technical Data

Air	32° 30%
Water	14° C 20° C
Net Cooling	120 kW

Liebert HPM with EC fan. The existing solution to save energy.

3st - Liebert HPM Extended Up

Lower Running Costs



Higher Running Costs



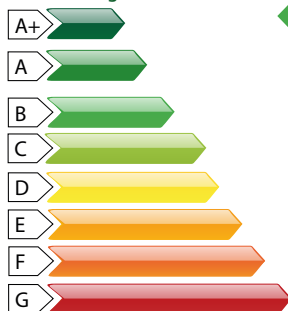
Technical Data

Air	32° 30%
Water	14° C 20° C
Net Cooling	120 kW

Liebert HPM Extended Up, A class energy efficient solution.

4st - Liebert HPM Extended Down

Lower Running Costs



Higher Running Costs



Technical Data

Air	32° 30%
Water	14° C 20° C
Net Cooling	120 kW

Liebert HPM Extended Down, the total efficient solution with A++ efficiency class.

Installation And Service Details

Chilled Water Water Piping Connections

Liebert HPM Extended has been designed in order to allow retrofitting to the standard unit the piping connections from the underside. No side access is required therefore a minimum floorspace is required.

Chilled water piping can be adapted according to customers' requests top and side water connections are available.

Humidifier

Access to the humidifier is from the front of the unit, for any type of maintenance.

Fans Replacements

Fans can be easily replaced for maintenance. Each fan module can be slid from the fan module, without disconnecting chilled water piping or other main units structural parts.

Fans Module Adjustable Feet

Fan modules are provided with adjustable feet to allow installation with different raised floor height from 600 mm to 1000mm. Optional feet are also available for higher raised floor heights.





Hooks For Unit Movement

The unit is provided with shipping hooks on the top, to allow the unit movement and handling.

Fans Power Cabling

In order to speed up the process for fans replacement, the fan power cables are provided with quick connectors to a terminal block, the cables can be easily removed and re installed.

Air Filter

Air filters are positioned parallel to the chilled water coils. Filter replacement is an easy operation. Increased air filter surface, provides a reduction in the air filter pressure drop and thus reduces fan power consumption.

Electric Heater



Electric heater when provided, and is positioned below the coil, providing easy maintenance access without removing additional components.

Liebert HPM Extended Units Do Not Need Additional Base Frame Accessories



Liebert HPM Extended units, in both Extended UP and Extended DOWN versions do not need additional base frames.

Liebert HPM Extended Performances

Performances referred at the following conditions: Return air 24°C, 50% RH Relative humidity - 10°C/15°C water temperature

	ECO MODE - 24°C 50% - 10°C - 15°C					
	Standard Unit with EC FAN	Standard Unit with EC FAN	Standard Unit with EC FAN	Standard Unit with EC FAN	Standard Unit with EC FAN	Standard Unit with EC FAN
Net Sensible Cooling Capacity [kW]	28,0	51,5	65,5	91,0	118,9	
Power Input [kW]	1,56	3,08	3,84	6,84	10,64	
Airflow [m3/h]	8150	14220	20400	25400	35400	
SHR	1	0,98	1	0,96	0,97	
	Liebert HPM M44EC Extended UP	Liebert HPM M77EC Extended UP	Liebert HPM L10EC Extended UP	Liebert HPM L15EC Extended UP	Liebert HPM L20EC Extended UP	
Net Sensible Cooling Capacity [kW]	28,0	51,5	65,5	91,0	118,9	
Power Input [kW]	1,00	1,62	2,74	4,20	5,60	
Airflow [m3/h]	7860	14250	18930	25570	33370	
SHR	1	1	1	0,99	0,99	
	Liebert HPM M44EC Extended DOWN	Liebert HPM M77EC Extended DOWN	Liebert HPM L10EC Extended DOWN	Liebert HPM L15EC Extended DOWN	Liebert HPM L20EC Extended DOWN	
Net Sensible Cooling Capacity [kW]	28,0	51,5	66,0	91,0	119,5	
Power Input [kW]	0,76	1,2	2,18	3,00	4,36	
Airflow [m3/h]	7860	14220	18890	24875	32930	
SHR	1	1	1	0,99	0,99	
	POWER MODE - 24°C 50% - 10°C - 15°C					
	Standard Unit with EC FAN	Standard Unit with EC FAN	Standard Unit with EC FAN	Standard Unit with EC FAN	Standard Unit with EC FAN	Standard Unit with EC FAN
Net Sensible Cooling Capacity [kW]	29,0	52,5	72,2	95,6	120,0	
Power Input [kW]	2,01	3,98	5,32	8,01	10,64	
Airflow [m3/h]	8650	14900	23450	27200	35540	
SHR	1	0,98	1	0,97	0,97	
	Liebert HPM M44EC Extended UP	Liebert HPM M77EC Extended UP	Liebert HPM L10EC Extended UP	Liebert HPM L15EC Extended UP	Liebert HPM L20EC Extended UP	
Net Sensible Cooling Capacity [kW]	35,7	70,0	77,0	108,0	142,3	
Power Input [kW]	2,63	5,28	5,18	7,95	10,60	
Airflow [m3/h]	11080	21760	23720	32000	41890	
SHR	1	1	1	1	1	
	Liebert HPM M44EC Extended DOWN	Liebert HPM M77EC Extended DOWN	Liebert HPM L10EC Extended DOWN	Liebert HPM L15EC Extended DOWN	Liebert HPM L20EC Extended DOWN	
Net Sensible Cooling Capacity [kW]	38,9	76,5	82,0	117,0	152,0	
Power Input [kW]	2,55	5,14	5,00	7,80	10,48	
Airflow [m3/h]	12200	24130	25430	35100	45120	
SHR	1	1	1	1	1	

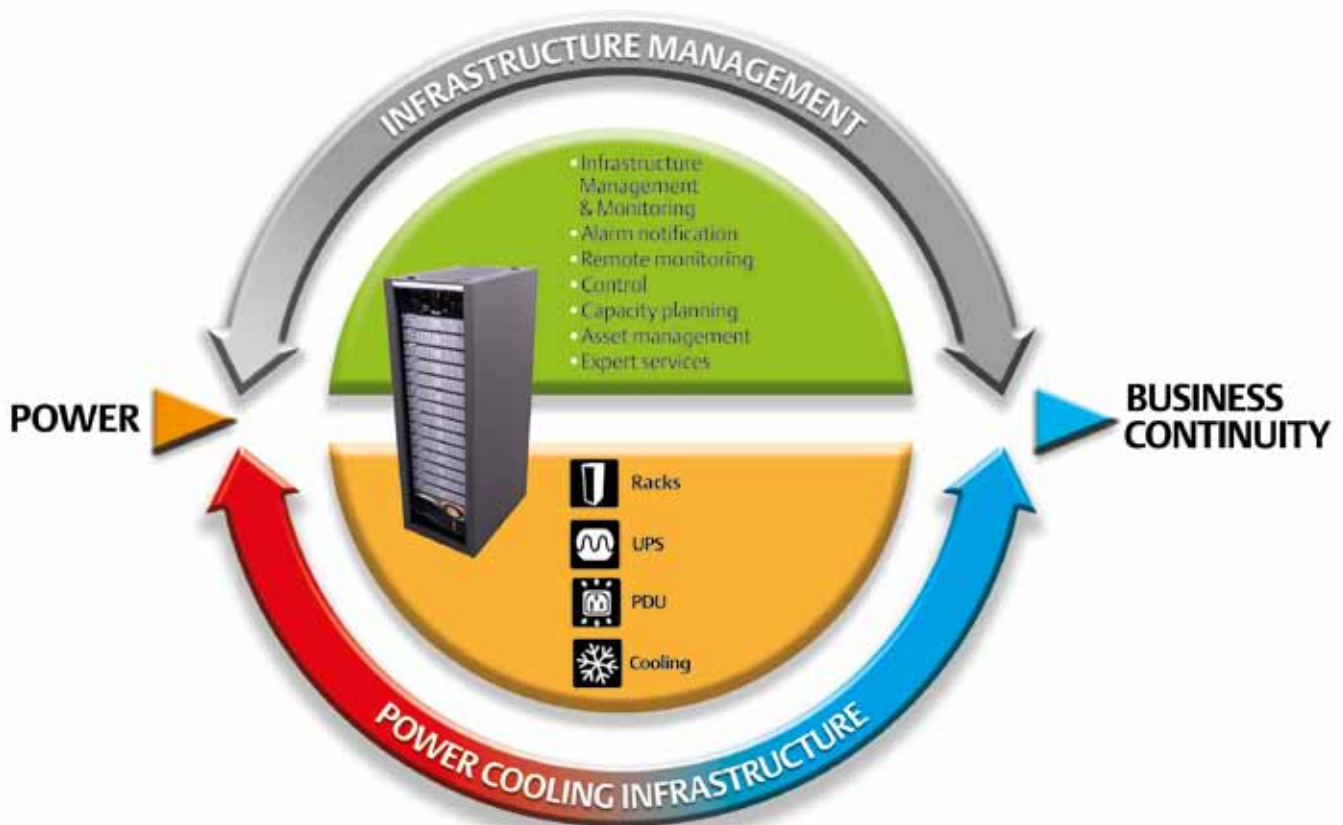
Performances referred at the following conditions: Return air 32°C, 30% RH Relative humidity - 14°C/20°C water temperature

	ECO MODE - 32°C 30% - 14°C - 20°C					
	Standard Unit with EC FAN	Standard Unit with EC FAN	Standard Unit with EC FAN	Standard Unit with EC FAN	Standard Unit with EC FAN	Standard Unit with EC FAN
Net Sensible Cooling Capacity [kW]	36,6	68,2	85,7	122,0	160,0	
Power Input [kW]	1,56	3,08	3,84	6,84	10,64	
Airflow [m3/h]	8150	14220	20400	25400	35400	
SHR	1	1	1	0,96	0,97	
	Liebert HPM M44EC Extended UP	Liebert HPM M77EC Extended UP	Liebert HPM L10EC Extended UP	Liebert HPM L15EC Extended UP	Liebert HPM L20EC Extended UP	
Net Sensible Cooling Capacity [kW]	36,6	68,5	86,4	123,3	160,6	
Power Input [kW]	1,00	1,78	2,84	4,71	6,08	
Airflow [m3/h]	7980	14720	19190	26640	34330	
SHR	1	1	1	1	1	
	Liebert HPM M44EC Extended DOWN	Liebert HPM M77EC Extended DOWN	Liebert HPM L10EC Extended DOWN	Liebert HPM L15EC Extended DOWN	Liebert HPM L20EC Extended DOWN	
Net Sensible Cooling Capacity [kW]	36,6	69,0	86,0	123,5	160,3	
Power Input [kW]	0,76	1,32	2,18	3,54	4,76	
Airflow [m3/h]	7860	14740	18890	26410	33960	
SHR	1	1	1	1	1	
	POWER MODE - 32°C 30% - 14°C - 20°C					
	Standard Unit with EC FAN	Standard Unit with EC FAN	Standard Unit with EC FAN	Standard Unit with EC FAN	Standard Unit with EC FAN	Standard Unit with EC FAN
Net Sensible Cooling Capacity [kW]	38,0	70,3	95,0	128,8	161,0	
Power Input [kW]	2,01	3,98	5,32	8,01	10,64	
Airflow [m3/h]	8650	14900	23450	27200	35540	
SHR	1	1	1	1	1	
	Liebert HPM M44EC Extended UP	Liebert HPM M77EC Extended UP	Liebert HPM L10EC Extended UP	Liebert HPM L15EC Extended UP	Liebert HPM L20EC Extended UP	
Net Sensible Cooling Capacity [kW]	46,8	91,7	101,0	141,4	186,3	
Power Input [kW]	2,63	5,28	5,18	7,95	10,6	
Airflow [m3/h]	11080	21760	23720	32000	41890	
SHR	1	1	1	1	1	
	Liebert HPM M44EC Extended DOWN	Liebert HPM M77EC Extended DOWN	Liebert HPM L10EC Extended DOWN	Liebert HPM L15EC Extended DOWN	Liebert HPM L20EC Extended DOWN	
Net Sensible Cooling Capacity [kW]	50,9	100,3	107,4	153,1	199,0	
Power Input [kW]	2,55	5,14	5,00	7,80	10,48	
Airflow [m3/h]	12200	24130	25430	35100	45120	
SHR	1	1	1	1	1	

More than 35,000 organizations
in 70 countries depend on
our Business - Critical Continuity™ Promise:
your IT infrastructure stays up
to support your Business!



Emerson Network Power Business-Critical Continuity™ Expert



Today's successful businesses depend on adaptable technologies to help them respond quickly to market demands. Your data center must be built on a support infrastructure designed to match the power and cooling needs of rapidly changing IT initiatives such as virtualization and consolidation. Each IT change, move or addition will affect the entire support infrastructure so you need products and support that ensure your IT systems will operate reliably in these environments.

Ensuring The High Availability Of Mission-Critical Data And Applications.

Emerson Network Power, a business of Emerson (NYSE:EMR), is the global leader in enabling *Business-Critical Continuity™* from grid to chip for telecommunication networks, data centers, health care and industrial facilities. Emerson Network Power provides innovative solutions and expertise in areas including AC and DC power and precision cooling systems, embedded computing and power, integrated racks and enclosures, power switching and controls, infrastructure management, and connectivity. All solutions are supported globally by local Emerson Network Power service technicians. Liebert AC power, precision cooling and monitoring products and services from Emerson Network Power deliver Efficiency Without Compromise™ by helping customers optimize their data center infrastructure to reduce costs and deliver high availability.

Contacts:

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Emerson Network Power™

The global leader in enabling Business-Critical Continuity™

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| ■ DC Power | ■ Infrastructure Management & Monitoring | ■ Precision Cooling | ■ Surge Protection |

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Emerson Network Power Srl- ISO 9001:2008.
Design, manufacturing, assembling and sales of chilled water
mixture and equipment for high precision air conditioning.
Sales of small uninterruptible power supply (UPS Small and Micro)



Emerson Network Power Srl-ISO 14001:2004:
Design, manufacturing, assembling and sales of chilled water
mixture and equipment for high precision air conditioning.
Sales of uninterruptible power supply (UPS Power). Design
of uninterruptible power supply (UPS Power). Sales of small
uninterruptible power supply (UPS Small and Micro). HQ Service
Activities (Spare parts warehouse, Technicians training)

