Precision Cooling for
Business-Critical Continuity™

Liebert HPC-M

The Data Center FreeCooling Chiller with the Lowest Impact on the Environment

EMERSON
Network Power

Emerson Network Power, a division of Emerson Electric Co., 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 supports 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.

Emerson Network Power Liebert HPC Chiller in conjunction with the SmartAisle™ to deliver the lowest operating costs.

Liebert HPC-M: When Reliability and High Efficiency Count.

Liebert HPC-M is the new Emerson Network Power product line of air-cooled chillers, from 350 to 800 kW, designed to combine the best performance in terms of efficiency and reliability with the lowest impact on the environment.

Cooling data centers or other technological installations requires units designed to be reliable.
Reliability enables high system availability.
With Liebert HPC-M we have added efficiency to the equation as this strongly impacts on the operating costs of the data center.
With Liebert HPC Emerson Network Power has introduced to the market a product able to extend its operating conditions to a wider range of water temperatures. In fact, data center applications may require variable cooling capacity during the day involving a water temperature much higher than the 7-12° C that a conventional chiller delivers.
These performances can be obtained when the entire system is setup to work in a SmartAisle™ configuration where the floor mounted or in the row cooling units can interact with the chiller, thanks to the iCOM control, providing the best performances with the lowest energy consumption.

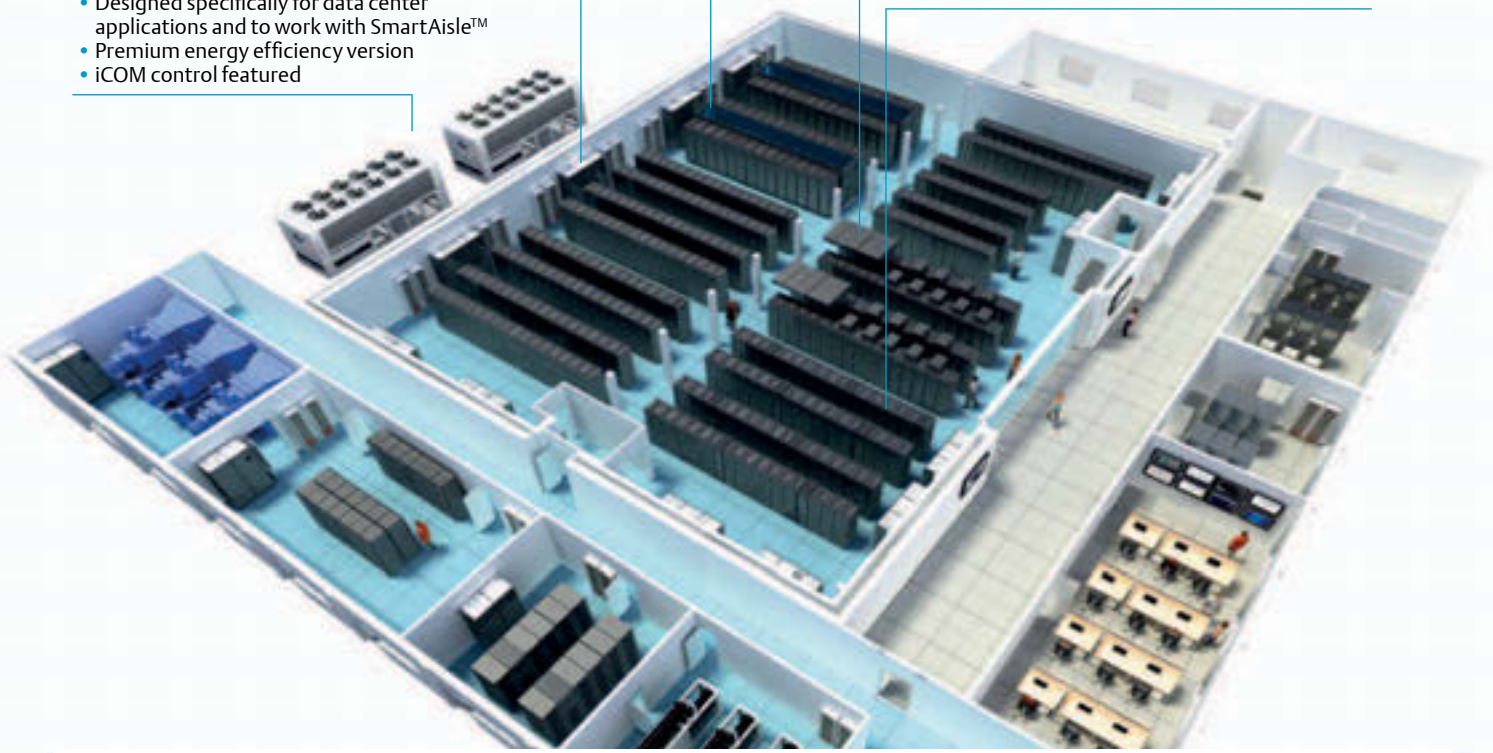
Liebert HPM Extended
Indoor Room Cooling chilled water units from 30 to 200 kW.
- Up to 50% increased efficiency
- Designed for SmartAisle applications
- Optimized for maximizing freecooling chiller efficiency

Liebert HPC
Wide range of high- efficiency freecooling chillers from 40 kW to 1600 kW
- Designed specifically for data center applications and to work with SmartAisle™
- Premium energy efficiency version
- iCOM control featured

SmartAisle™
- Aisle containment
- Provides highest energy efficiency
- Works with any Liebert Cooling Unit

Liebert XD
Refrigerant based high density cooling installed close to the server
- Hot spot management for up to 30 kW per rack
- On-demand upgrade with plug and play
- High efficiency and 100% sensible cooling

Liebert CRV
Row-based high efficiency precision cooling units available in DX or CW versions
- Decoupled control for airflow and cooling capacity
- Modulating cooling capacity with digital scroll
- iCOM control with remote rack sensors



Trellis™ Solutions

Liebert HPC is ready to be integral to the benefits of the Trellis™ platform.
Trellis™ is the first integrated, single information-source data center infrastructure management (DCIM) platform. It brings together IT equipment and facilities infrastructure and allows data center managers to make smarter decisions on the interplay between efficiency, availability and capacity utilization of the entire infrastructure and in particular of Liebert HPC chillers, Liebert HPM floor mounted units and of the overall Emerson Network Power Precision cooling system.

Liebert HPC-M: Drive Down the CO_2 Emission with the Data Center FreeCooling Chiller.

Liebert HPC-M (300-800kW) Best Goals Are:
Maximized energy efficiency thanks to:

- New compressor design optimized to guarantee high efficiency especially in partial load
- Evaporators: a new advanced DX evaporator optimized for R134a, with counter current configuration.
  - PHE (frame with 6-8 fans)
  - Shell & Tube (frame with 10-12 fans)
- EEV (Electronic Expansion Valve): stability and efficiency guaranteed in all conditions

EC Fans:
High efficiency motors guarantee energy consumption 25% less than traditional AC motors.
Lower sound emission, without any electromagnetic noise.

Adapt Your Chiller to the Environment, and Protect IT.
Liebert HPC-M efficiency is at its greatest when it comes to the "G" version. Designed for extreme external conditions, like tropical temperatures found in the Middle East, this model contains technologies that bring the highest efficiency. For this reason, it is not only suitable for the environments already mentioned, but also for a wider operating range, including various industrial applications, where the required water temperature is higher than the conventional operating conditions of a standard chiller.

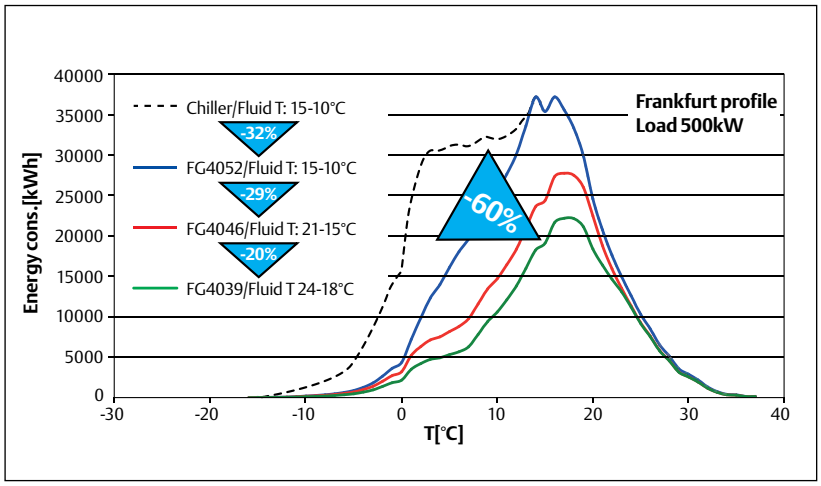
The Fast Start Ramp: Never-Ending Availability.
The Fast Start Ramp is the innovative technology that in the case of any emergency, like a power failure, restores the optimal operation of the chiller. Liebert HPC-M 100% capacity is available in 40 seconds, avoiding any unacceptable increase in water temperature. Your business continuity is safe.

Main Components

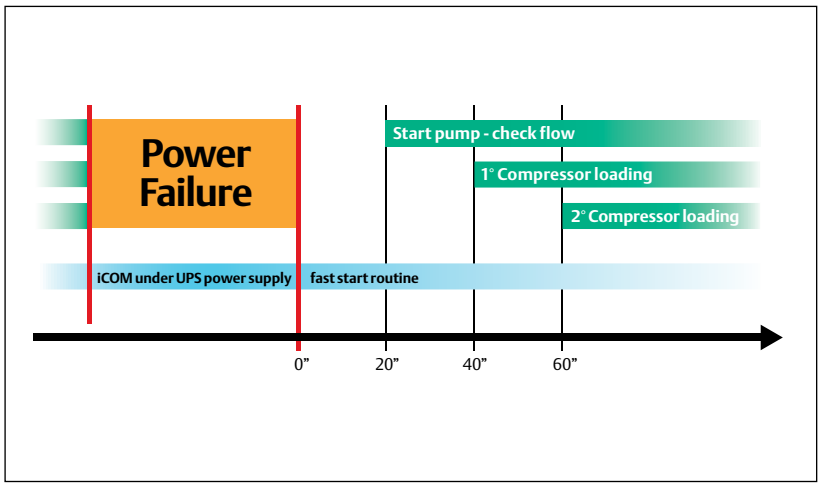
- Air cooled screw chiller
- Chiller & Free-cooling versions
- R134a
- 2 screw compressors
- 2 independent refrigerant circuits
- Step less capacity control
- EEV

- 29 sizes
- Compact design
- EC Fans
- Extremely low noise
- High Efficiency
- Wider Operating Range

Liebert HPC-M is the chiller voted of maximum efficiency, equipped with those techonologies that provide the best performance having the environment in mind.



Liebert HPC-M with SmartAisle™ compared with a conventional chiller installation.



Liebert HPC M Fast Start Ramp routine.

SCREW COMPRESSOR
Liebert HPC-M is equipped with screw compressors to improve efficiency and reliability of performance.

FAST START RAMP
Liebert HPC-M, always reliable. Fast Start Ramp ensures your chiller is restored to full capacity in only 40 seconds after a power failure.

HIGH EFFICIENCY
Maximized efficiency, even when working in tropical regions. Up to 60% energy saving with the "G" version.

EXTREMELY LOW NOISE
A silent Chiller, thanks to the HyBlade EC Fans and special acoustic insulation for the greatest comfort

iCOM
Advanced unit and teamwork control to maximize energy efficiency. It operates at extreme ambient and water temperature conditions.

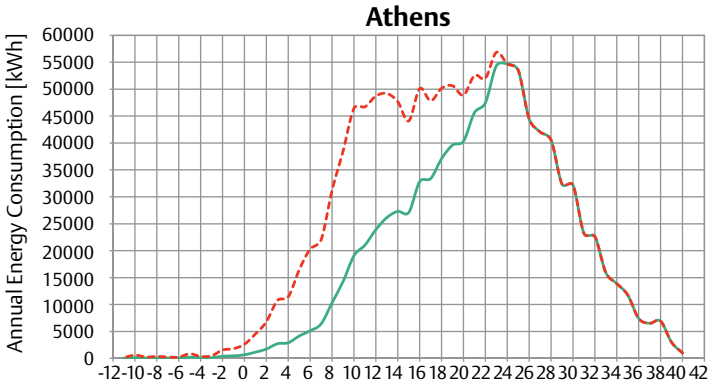
FREE COOLING
Integrated Freecooling section, to get additional energy saving and greater reliability.

Liebert HPC-M: Energy Saving and Freecooling from Athens to Oslo.

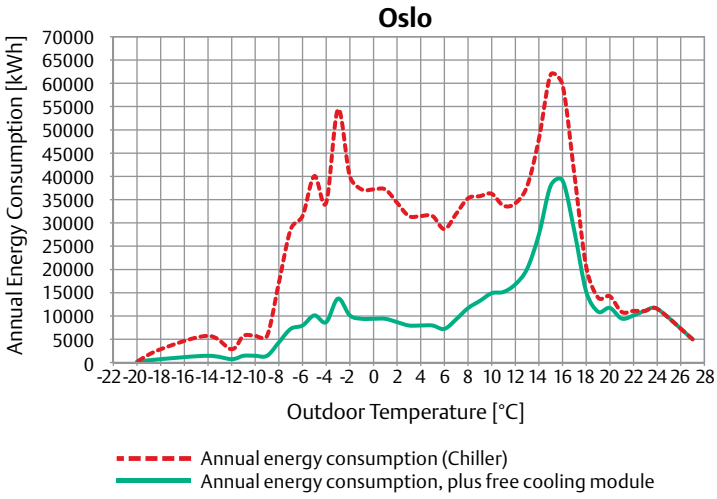
Integrated Freecooling section takes advantage of low outdoor air temperatures in the water cooling process by enabling compressor operation to be progressively reduced until being stopped, thereby saving energy. The strategies adopted by iCOM control the fan, compressor and regulation valve components, whilst operating modes, mechanical and/or free cooling, together with the compressors' continuous modulation, ensure typical energy savings greater than 40% (in Northern and Central Europe).

Precision Cooling Benefits for Data Center & Industrial Applications

- **Lower annual energy consumption**
- **Reduced space requirements**
- **Reduction of compressors' working hours**
- **Higher reliability**
- **Safe operation at extremely low temperatures (e.g. -25/-30°C)**



Savings of more than 30% in energy use and up to 40k€ in your energy bill!



More than 60% in energy saving, so up to 70k€ saved in your energy bill!

The above conditions represent the saving for a 800 kW Liebert HPC, working in combination with SmartAisle™, where the required supply air temperature is 24°C. The Freecooling Chiller is considered in the worst case of full load. A lower load would determine an higher unit efficiency, and therefore higher savings. Cost of the energy considered is of 0,1€/kWh

Liebert HPC can be configured according to individual installation requirements, meeting our customers' needs with flexibility.

Liebert HPC-M: Features

Standard options

- Electronic expansion valve
- Evaporator water flow switch
- Part winding starting method
- Double set point
- Shifting set point
- Auto unit Delta T setting
- Advanced low condensing pressure control
- Intelligent fans control based on external temperature or timeframe
- Demand limit
- Intelligent inrush current control
- Remote on/off relay
- Voltage free contact:
  - chiller/pump operation
  - compressors operation
  - general alarm
  - general warning
  - freecooling status

  (configurable)
- EC Fans (on "G" and "Q" version)

Additional options

- Star delta starting method
- Economizer
- Pumps group on board - Inverter pumps
- Hydraulic kit
- Double power supply and Fast Start Ramp
- Compressor suction shut off valve
- Evaporator-pipes-pumps trace heating
- No-Glycol
- Heat Recovery
- Electrical panel heaters
- Energy meter
- Condensing coils filters
- Protection grid
- Compressors power factor correction
- Anti vibration mount, rubber or spring [KIT]
- BMS communication: ModBUS, BACnet, Lon Works, SNMP

G Model (The Best Efficiency Model)		CG4036	CG4039	CG4046	CG4052	CG4058	CG4066
Refrigerant R134a							
Cooling Capacity [1]	kW	364	412	442	531	575	645
Total Power Input [1]	kW	113	127	138	162	174	198
Unit EER [1]		3,21	3,24	3,20	3,28	3,30	3,26
Cooling Capacity [2]	kW	400	447	486	574	622	692
Total Power Input [2]	kW	129	142	157	181	195	220
Unit EER [2]		3,10	3,14	3,09	3,18	3,19	3,14
SPL (Sound Pressure Level) [3]	dB(A)	79,5	79,5	80	80	81	81
PWL (Sound Power Level) [4]	dB(A)	99	99	100	100	101	101
Evaporator type		Plate Heat Exchanger		Shell & Tube			
Dimensions - L x D x H	mm	5017x2260x2570		6013x2260x2570		7009x2260x2570	
Operating Weight	kg	4.476	4.522	6.268	6.288	6.837	6.854

B Model (Base Model)		CB4031	CB4036	CB4039	CB4046	CB4052	CB4058	CB4066	CB4078
Refrigerant R134a									
Cooling Capacity [1]	kW	307	344	389	426	506	544	618	736
Total Power Input [1]	kW	101	117	132	141	167	181	205	251
Unit EER [1]		3,05	2,95	2,94	3,02	3,03	3,01	3,01	2,93
Cooling Capacity [2]	kW	339	384	428	473	551	596	670	800
Total Power Input [2]	kW	115	137	152	164	190	207	233	278
Unit EER [2]		2,94	2,81	2,81	2,89	2,91	2,88	2,88	2,88
SPL (Sound Pressure Level) [3]	dB(A)	78	78	78	78,5	78,5	79	79	80
PWL (Sound Power Level) [4]	dB(A)	97	97	97	98	98	99	99	100
Evaporator type		Plate Heat Exchanger					Shell & Tube		
Dimensions - L x D x H	mm	4021x2260x2570			5017x2260x2570		6013x2260x2570		7009x2260x2570
Operating Weight	kg	3691	3.740	3.785	5.040	5.132	6.089	6.112	6884

L Model (Extremely Low Noise Model)		CL4031	CL4036	CL4039	CL4046	CL4052	CL4058	CL4066	CL4078
Refrigerant R134a									
Cooling Capacity [1]	kW	303	344	396	426	506	544	631	721
Total Power Input [1]	kW	99	113	129	136	164	174	196	249
Unit EER [1]		3.06	3,04	3,08	3,13	3,09	3,12	3,22	2.90
Cooling Capacity [2]	kW	337	384	435	472	554	596	680	786
Total Power Input [2]	kW	115	134	147	159	187	202	220	279
Unit EER [2]		2,93	2,87	2,96	2,97	2,96	2,96	3,09	2,82
SPL (Sound Pressure Level) [3]	dB(A)	70	70	70,5	70,5	71	71	72	72
PWL (Sound Power Level) [4]	dB(A)	89	89	90	90	91	91	92	92
Evaporator type		Plate Heat Exchanger				Shell & Tube			
Dimensions - L x D x H	mm	4021x2260x2570		5017x2260x2570		6013x2260x2570		7009x2260x2570	
Operating Weight	kg	3633	3.679	4.222	4.930	5.910	5.928	6.469	6674

Q Model (Quiet Model)		CQ4031	CQ4036	CQ4039	CQ4046	CQ4052	CQ4058	CQ4066
Refrigerant R134a								
Cooling Capacity [1]	kW	297	344	387	421	495	542	603
Total Power Input [1]	kW	97	108	124	131	160	166	196
Unit EER [1]		3.07	3,19	3,11	3,21	3,10	3,26	3,07
Cooling Capacity [2]	kW	331	384	426	470	544	595	656
Total Power Input [2]	kW	114	128	145	156	186	194	226
Unit EER [2]		2.90	3,00	2,95	3,02	2,93	3,07	2,90
SPL (Sound Pressure Level) [3]	dB(A)	65	65,5	65,5	66	66	67	67
PWL (Sound Power Level) [4]	dB(A)	84	85	85	86	86	87	87
Evaporator type		Plate Heat Exchanger			Shell & Tube			
Dimensions - L x D x H	mm	4021x2260x2570	5017x2260x2570		6013x2260x2570		7009x2260x2570	
Operating Weight	kg	3742	4.286	4.332	5.996	6.020	6.557	6.579

1 Cooling capacity at the following standard conditions: power supply 400V/3ph/50Hz; outdoor temperature 35°C; water inlet/outlet temperature 12/7 °C; ethylene glycol 0%
2 Cooling capacity at the following standard conditions: power supply 400V/3ph/50Hz; outdoor temperature 35°C; economizer option water inlet/outlet temperature 12/7 °C; ethylene glycol 0%
3 Measured with outdoor temperature 35 °C; 1m from the unit; free field conditions; according to ISO 3744
4 With outdoor temperature 35°C; calculated according to ISO 3744

G Model (The Best Efficiency Model)		FG4036	FG4039	FG4046	FG4052	FG4058	FG4066
Refrigerant R134a							
Cooling Capacity [1]	kW	383	424	475	558	607	680
Freecooling Capacity [1]	kW	280	287	343	358	425	440
Total Power Input [1]	kW	118	135	145	173	185	213
Unit EER [1]		3,24	3,14	3,28	3,23	3,28	3,20
Cooling Capacity [2]	kW	418	460	519	603	655	729
Total Power Input [2]	kW	135	152	165	195	209	238
Unit EER [2]		3,10	3,02	3,14	3,09	3,14	3,06
SPL (Sound Pressure Level) [3]	dB(A)	79,5	79,5	80	80	81	81
PWL (Sound Power Level) [4]	dB(A)	99	99	100	100	101	101
Evaporator type		Plate Heat Exchanger		Shell & Tube			
Dimensions - L x D x H	mm	5017x2260x2570		6013x2260x2570		7009x2260x2570	
Operating Weight	kg	5.236	5.282	7.278	7.301	8.008	8.089

B Model (Base Model)		FB4031	FB4036	FB4039	FB4046	FB4052	FB4058	FB4066	FB4078
Refrigerant R134a									
Cooling Capacity [1]	kW	322	359	396	447	517	579	644	762
Freecooling Capacity [1]	kW	203	207	212	273	281	341	348	421
Total Power Input [1]	kW	105	122	143	148	180	191	222	271
Unit EER [1]		3,06	2,93	2,78	3,03	2,88	3,04	2,90	2,81
Cooling Capacity [2]	kW	354	399	437	494	563	632	699	827
Total Power Input [2]	kW	121	144	166	172	207	220	255	304
Unit EER [2]		2,92	2,77	2,63	2,87	2,73	2,88	2,75	2,72
SPL (Sound Pressure Level) [3]	dB(A)	78	78	78	78,5	78,5	79	79	80
PWL (Sound Power Level) [4]	dB(A)	97	97	97	98	98	99	99	100
Evaporator type		Plate Heat Exchanger					Shell & Tube		
Dimensions - L x D x H	mm	4021x2260x2570			5017x2260x2570		6013x2260x2570		7009x2260x2570
Operating Weight	kg	4.322	4.371	4.416	5.852	5.946	7.100	7.154	8.104

L Model (Extremely Low Noise Model)		FL4031	FL4036	FL4039	FL4046	FL4052	FL4058	FL4066	FL4078
Refrigerant R134a									
Cooling Capacity [1]	kW	317	353	413	439	540	569	659	746
Freecooling Capacity [1]	kW	192	196	256	257	318	320	387	394
Total Power Input [1]	kW	103	122	135	146	173	188	213	270
Unit EER [1]		3,06	2,90	3,07	3,00	3,12	3,02	3,10	2,76
Cooling Capacity [2]	kW	350	393	451	487	587	624	712	811
Total Power Input [2]	kW	120	145	154	173	198	220	242	306
Unit EER [2]		2,91	2,71	2,92	2,82	2,96	2,84	2,94	2,65
SPL (Sound Pressure Level) [3]	dB(A)	70	70	70,5	70,5	71	71	72	72
PWL (Sound Power Level) [4]	dB(A)	89	89	90	90	91	91	92	92
Evaporator type		Plate Heat Exchanger				Shell & Tube			
Dimensions - L x D x H	mm	4021x2260x2570		5017x2260x2570		6013x2260x2570		7009x2260x2570	
Operating Weight	kg	4.262	4.310	4.982	5.742	6.920	6.941	7.697	7.892

Q Model (Quiet Model)		FQ4031	FQ4036	FQ4039	FQ4046	FQ4052	FQ4058	FQ4066
Refrigerant R134a								
Cooling Capacity [1]	kW	304	360	396	449	517	567	629
Freecooling Capacity [1]	kW	166	218	223	268	276	329	336
Total Power Input [1]	kW	104	114	134	139	173	180	214
Unit EER [1]		2,93	3,17	2,97	3,22	2,99	3,15	2,94
Cooling Capacity [2]	kW	339	400	436	499	566	623	686
Total Power Input [2]	kW	124	136	157	166	203	212	249
Unit EER [2]		2,73	2,95	2,78	3,00	2,79	2,94	2,75
SPL (Sound Pressure Level) [3]	dB(A)	65	65,5	65,5	66	66	67	67
PWL (Sound Power Level) [4]	dB(A)	84	85	85	86	86	87	87
Evaporator type		Plate Heat Exchanger			Shell & Tube			
Dimensions - L x D x H	mm	4021x2260x2570	5017x2260x2570		6013x2260x2570		7009x2260x2570	
Operating Weight	kg	4.371	5.046	5.092	7.012	7.032	7.728	7.807

1 *Cooling capacity at the following standard conditions: power supply 400V/3ph/50Hz; outdoor temperature 35°C; coolant inlet/outlet temperature 15/10 °C; ethylene glycol 30%*
Freecooling capacity at the following standard conditions: power supply 400V/3ph/50Hz; outdoor temperature 5°C; coolant inlet temperature 15°C; ethylene glycol 30%; coolant fluid flow as indicated at (1) conditions
2 *Cooling capacity at the following standard conditions: power supply 400V/3ph/50Hz; outdoor temperature 35°C; economizer option coolant inlet/outlet temperature 15/10 °C; ethylene glycol 30%*
3 *Measured with outdoor temperature 35 °C; 1m from the unit; free field conditions; according to ISO 3744*
4 *With outdoor temperature 35°C; calculated according to ISO 3744*

Liebert HPC-M Witness Test Area: Know Your Chiller Before Installing It.

The goal is to help our customers achieve excellence in terms of product quality, reduced Energy consumption and improved operations.

Gain confidence right from the outset: come and witness test your Liebert Chiller enjoying the new testing cabin, designed to reproduce the most severe conditions.

The quality and performance of a new product starts with the Research and Development phase. It then continues with a design which employs first quality components and integrates them together to reach the highest efficiency and reliability that our customers are looking for.

"Design" includes the manufacturing process and test phases, which warrant that every unit is produced to achieve the capabilities for which it has been conceived. The commitment we have with our customers is "come to see and test your product before it is shipped to your location".

Why test a product?
To monitor different operating sequences that a customer may want to double check before the installation, obtain performance measurement at a given load, become familiar with the new product, or to simply enjoy the pleasure to be where your unit is manufactured and tested.

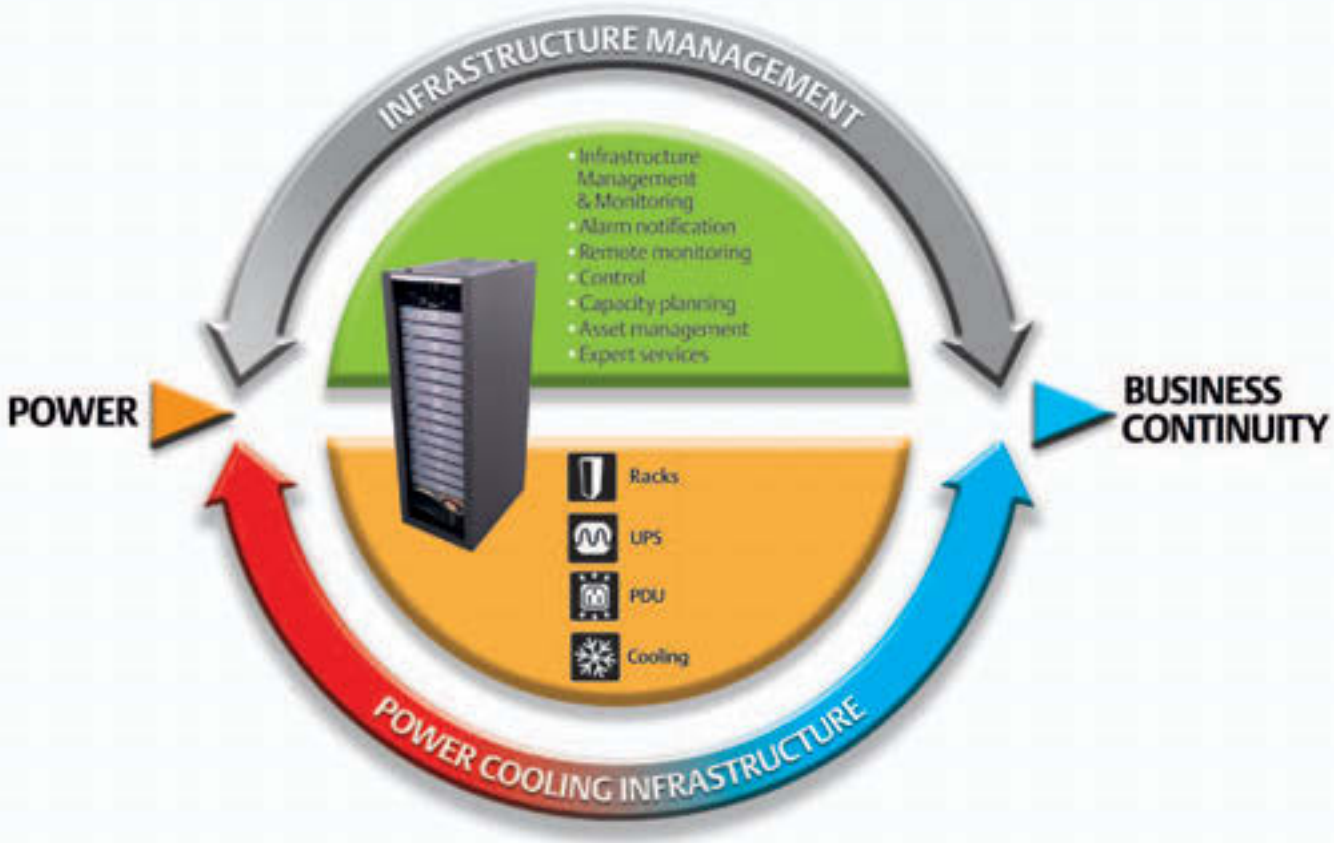
There are details which are important; we want you to know about them!

Think about the test of a Freecooling Chiller up to 1600kW, with a tolerance up to 0.1 °C: the test cabin precisely reproduces the external working conditions, exactly those conditions that may happen one day during the year. The test cabin can fully reproduce the conditions, so you'll be sure that if they do occur the performance of your Liebert Chiller will not be affected.

Others could say
"Our catalogue says it works"
... you instead can say
"I have seen it and I know it works! ".

The Witness Test Cabins has been built to improve the reliability of the tests so that our customers can rely on our chillers even before installing them.

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.

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

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.

Locations

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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)

HPCM0-BRO-EN-0211-01

Emerson Network Power
The global leader in enabling Business-Critical Continuity™

- AC Power
- Connectivity
- DC Power
- Embedded Computing
- Embedded Power
- Infrastructure Management & Monitoring
- Outside Plant
- Power Switching & Controls
- Precision Cooling
- Racks & Integrated Cabinets
- Services
- Surge Protection