



Liebert®

CRV+™ CW

Row based Efficient Cooling for High
Density Data Center



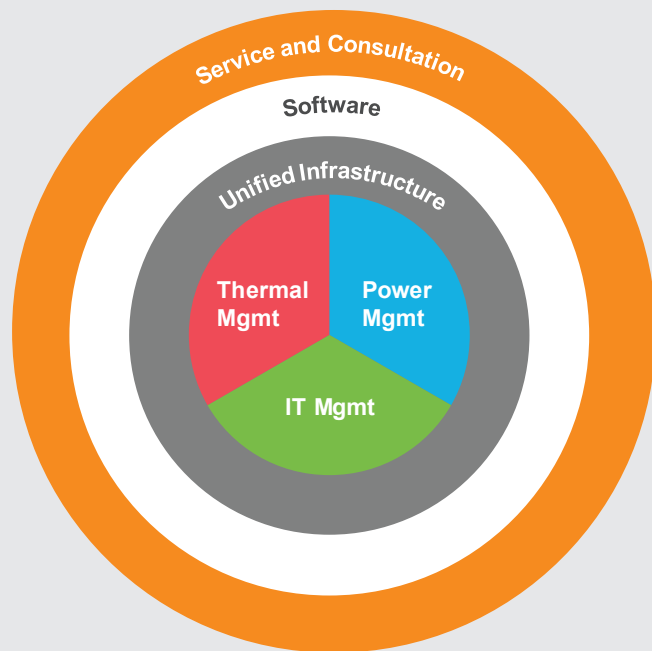


Vertiv designs, builds and services critical infrastructure that enables vital applications for data centres, communication networks and commercial and industrial facilities. Formerly Emerson Network Power, Vertiv supports today's growing mobile and cloud computing markets with a portfolio of power, thermal and infrastructure management solutions including the Chloride®, Liebert®, NetSure™ and Trellis™ brands. Sales in fiscal 2016 were \$4.4 billion. For more information, visit VertivCo.com.

Vertiv

Your Vision, our Passion

With a unique combination of industry expertise, technology, and resources, our mission is to support and power mission-critical technologies that drive possibility.



Chloride®

Our global industrial power solutions meet the most demanding technical specifications and provide safe, reliable power- no matter the challenge

Liebert®

Our global power and thermal management solutions are some of the world's most efficient and reliable power and cooling technologies

NetSure™

Our global intelligently engineered DC power systems deliver high availability, energy efficiency, and scalability for converged networks

Trellis™

Our industry-leading software gives customers an integrated view of operations across IT and facilities resources, enabling better decisions that save time and money

Chilled-water based, intelligent, energy efficient cooling solution

The Liebert® CRV+ CW is a thermal management system that is positioned in rows of IT racks for data centers. By being closer to the heat source, it provides quick cooling and adapting to load changes, thereby providing the best efficiency in its class for the most efficient cooling of critical IT equipment.

WHAT'S HAPPENING?

- Global high performance computing (HPC) market is projected to reach USD 36.62 Billion by 2020, at a CAGR of 5.45%*
- IT & Telecom firms are beginning to focus more on shrinking chips while exponentially increasing computing power
- This would generate a lot of concentrated heat with a significant rise in the exit air temperature
- Precise cooling under these circumstances would require a solution to be:
 - Robust and reliable
 - Designed to handle high differential in air temperature
 - High efficiency with low power consumption
 - Advanced control and monitoring mechanism

*(Source: www.reportsnreports.com)



The Liebert® CRV+™ CW is the ideal choice for high performance computing environments because of its:

- Coil designed for high temperatures
- Advanced controller
- Fail-safe mechanisms for higher reliability
- Rigid construction for durability



As more data is generated and computing requirements rise, traditional IT environments are faced with increasing load density in data centers. This generates massive amounts of heat that can make your equipment prone to breakdowns or outages. Traditional precision air-conditioning systems are no longer enough to handle the heat.

Vertiv, formerly Emerson Network Power, introduces the Liebert® CRV+™ chilled water variant. Ideally and economically designed to fit in a row of IT data center racks, the Liebert® CRV+™ CW provides cooling closer to the heat source for quick cooling of your IT equipment.

Traditional cooling systems face limitations of being unable to support high temperatures, higher delta T across the cooling coil and adaptability to load variations. This is addressed by the Liebert® CRV+™ CW solution. The Liebert® CRV+™ CW is available in capacities and configurations of 300mm wide (30kW & 35kW) and 600mm wide (60kW & 65kW).

Primary concerns faced in High Performance Computing (HPC) requirements today

The Liebert® CRV+™ CW solution advantage



Physical constraints

Not feasible for a conventional perimeter solution
Height – 2500mm height available
Row space – 300mm ≤ width ≥ 600mm



Cooling Demands

High density rows - concentrated load < 6kW/rack
Cold aisle temperature range – 22°C to 25°C



Increase CW system efficiency

Based on latest trends in data centers in compliance with ASHRAE’s guidelines, CW temperature range should be <15°C (in) & <20°C (out)



Energy Saving concerns

The solution should have a low OPEX and deliver the highest output (kW/TR should be higher)



Maintenance Concerns

Ease of access to major components to facilitate easy maintenance and replacement; also hot swappable fan applicable for CR030 & CR035

Available in 300 mm & 600 mm width

Can handle up to 15kW/ rack with containment

High Temperature coil design + EC fan for step-less modulation

PID logic control + EC fan + High Temperature coil ensure low OPEX

CW valve, EC fans & coil easily accessed from front



EFFICIENCY

- Energy efficient EC fans for step-less modulation to supply the right airflow at the lowest power consumption
- High temperature coil design for an efficient heat transfer with an ability to handle higher return air temperatures
- High efficiency G4 filter which provides an efficiency of 90% up to 5 microns
- Supply air front grilles for directing air to the front of the racks which ensures adequate air supply to racks & uniform air supply pattern to avoid hot spots

RELIABILITY

- Robust construction of the unit with CRCA frame and powder coated panels for higher durability and aesthetics
- Expert level fault diagnostics system that displays the current faults automatically which facilitates ease of maintenance
- Alarms aid in remote monitoring
- Condensate water drain pump (optional) for condensate collection and quick disposal



QUALITY

- Chilled water modulation valve for regulating the flow-rate as per the cooling demand
- Threaded joint connection for ease of maintenance and installation
- Strip Heater (optional) for better control on the temperature range with reference to the set point. Bottle humidifier (optional) for managing a close control on the humidity range from the set point

AVAILABILITY

- Advanced controller with a built-in PID logic, simple UI, auto startup on power failure, records 500 history events and protects the system with safety & cut out features
- Dual power supply (optional) for accepting power redundant inputs
- SIC Card (optional) for third party monitoring
- Water flow sensor (optional)

Liebert® CRV+™ CW Variants and Components



Advanced Controller

- Advanced PID regulation technology
- Backlit LCD screen simple user interface
- Stores up to 500 historical alarm records



CR030RC	CR060RC
300mm W × 2000mm H	600mm W × 2000mm H
CR035RC	CR065RC
300mm W × 2200mm H	600mm W × 2200mm H

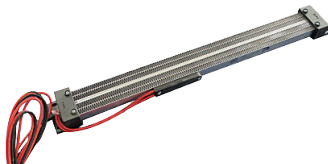


CR 030 & 035

CR 060 & 065

Efficient EC Fans

- Step-less variation in speed
- Operates at optimum speeds for power saving
- Easy access and replacement



Electric Heaters

- PTC heater
- For CR030&035 – 3kW & for CR060 &065 – 6kW
- Reheat elements shall be low watt density, wired for three-phase, loaded equally on all three phases



Motorized Chilled Water Valve

- Close control integration of fan and valve to adapt to variations in load quickly
- Motorized actuator provided for better control
- Continuous variation helps support PID logic to meet the cooling demands



Electrode humidifier

- Easy accessibility
- Shorter run time
- Auto-flush cycle is in-built for cleaning system.
- Integrated with the controller for alarm generation

Technical Specifications

PARAMETERS	CR 030	CR 035HC	CR 060	CR 065HC
Dimensions (W×D×H) (mm)	300 × 1100 × 2000	300 × 1200 × 2200	600 × 1100 × 2000	600 × 1200 × 2200
Net Weight (empty) (kg)	180	200	300	330
Net Total Cooling Capacity* (kW)	30.3	36.5	59.1	70.7
Net Sensible Cooling Capacity (kW)	30.3	36.5	59.1	70.7
Airflow (CMH)	5100	6000	9300	11500
Type of fan	Electronically commutated fan			
Number of Fans	8	8	3	3
Fan Power (kW)	1.05	1.49	1.52	2.28
CW valve type	2 Way Motorized valve			
CW flow rate (CMH)	5.58	6.5	10.2	12.24
Type of filter	Dry media type (G4 rating)			
Type of humidifier	Electrode humidifier			
Capacity of humidifier (kg/hr)	1.5	1.5	1.5	1.5
Type of heater	PTC Heater			
Heater Rating (kW)	3	3	6	6
Sound pressure level (@ 2m in front of the unit) (dBA)	79	78	75	76
Power Supply	220V/1Ph/50Hz or 60Hz		380~415V/3Ph/50Hz or 60Hz	

*Performance rating at RA T 37°C/24% RH & CHW in/out 10/15°C

*Specification are subject to change without any prior intimation



VertivCo.com | Asia Pacific

© 2018 Vertiv Co. All rights reserved. Vertiv and the Vertiv logo are trademarks or registered trademarks of Vertiv Co. All other names and logos referred to are trade names, trademarks or registered trademarks of their respective owners. While every precaution has been taken to ensure accuracy and completeness herein, Vertiv Co. assumes no responsibility, and disclaims all liability, for damages resulting from use of this information or for any errors or omissions. Specifications are subject to change without notice.

TM-EN-AP-6-1-0-18-2