Vertiv™ Liebert® CRV4

12 kW to 45 kW

4th Generation Row-Cooling
with Elevated Performance

Liebert® CRV4, 12 kW to 45 kW

Designed to Enhance Data Center Cooling Performance

The Vertiv™ Liebert® CRV4 thermal management solution is a row-based solution designed to provide maximum cooling in a compact footprint. The solution provides the highest efficiency and availability by removing heated air from the data center hot aisle and using it to return cooled air to the servers (cold aisle).
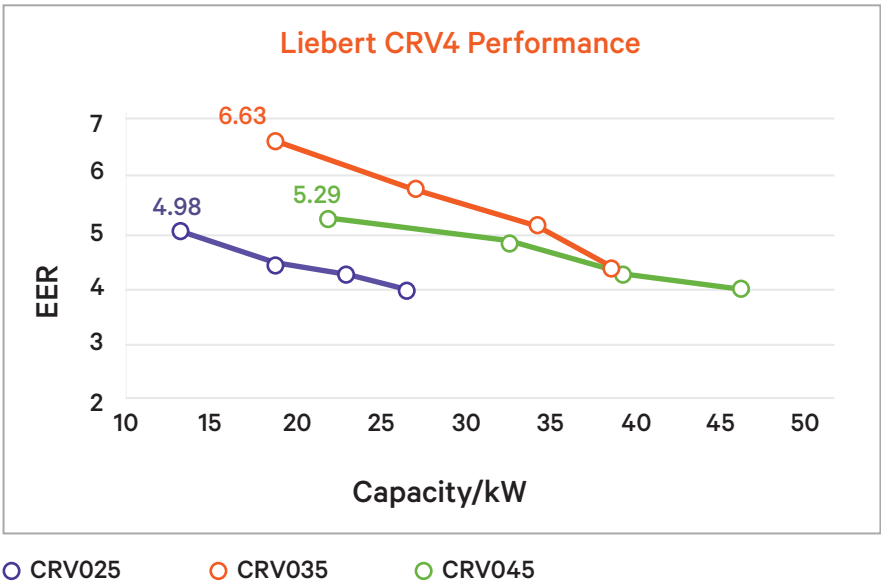
The Liebert CRV4 includes all of the critical functions fundamental to cooling units such as: humidification, dehumidification, re-heating, air filtration, condensation management, temperature and humidity control, alarm functions and data communications

A stand-alone, direct expansion system with variable capacity, available in both 300 mm (12 & 25 kW) and 600 mm (35 & 45 kW) versions, complete with roof or wall-mounted condenser. The Liebert CRV4 series enhances capacity range as well as offers superior performance over all the available row cooling solutions in the marketplace.

It is ideally suited for rack-level cooling, specifically designed for high return air temperatures. The Liebert CRV4 optimizes air distribution and maximizes efficiency, delivering both cost and economical operation.

Below mentioned graphical representation shows ultra efficiency by Liebert CRV4 at different load conditions.

Liebert® CRV4 Unit

Liebert CRV4 Performance

CRV025 — CRV035 — CRV045

Liebert CRV4: Achieving one of the best EER credentials in the market

This capacity vs EER (without condenser power) graph is drafted considering indoor return air temperature at 37 °C C DBT & relative humidity of 24 %, while condensing temperature is 45 °C. It is seen that during partial load, EER value is maximum for any model and energy efficiency is much better than legacy series & any other available solution in market.

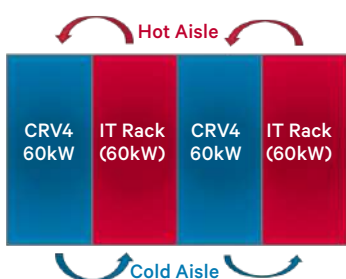- *Suitable for small computer rooms to large data centres*

- *Suitable for high density heat loads (>8 kW / rack)*
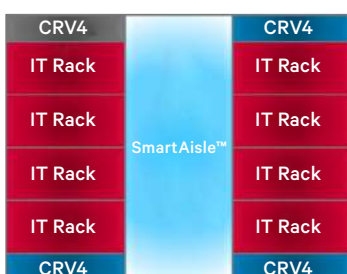
- *Able to provide cooling with or without raised floor*

- *Thermal Group Control for up to 32 units*
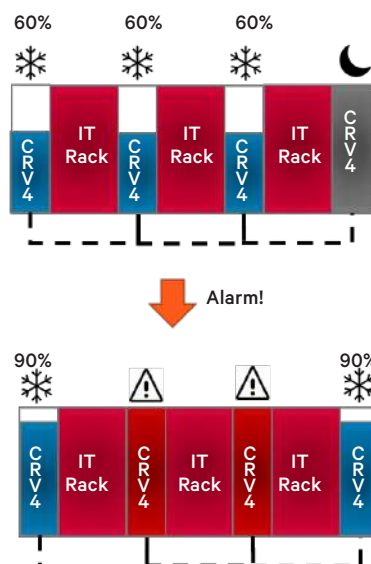
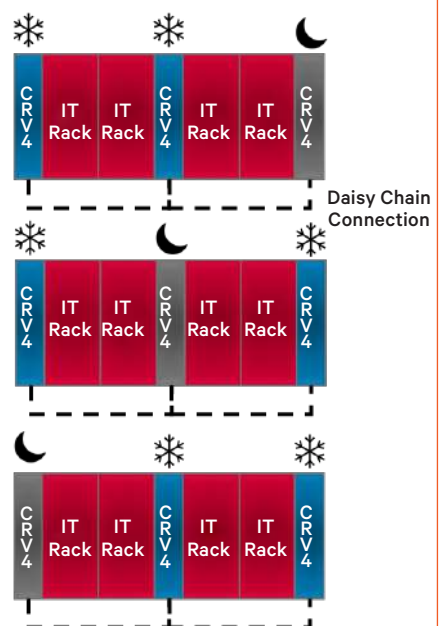## Liebert CRV4: Configuration

High Density Cooling

Hot Aisle

| CRV4 60kW | IT Rack (60kW) | CRV4 60kW | IT Rack (60kW) |

Cold Aisle

POD Configuration

CRV4		CRV4
IT Rack		IT Rack
IT Rack	SmartAisle™	IT Rack
IT Rack		IT Rack
IT Rack		IT Rack
CRV4		CRV4

Hot Standby / Emergency

60%   60%   60%

Alarm!

90%   90%

Duty Rotation/Standby (n+1)

Daisy Chain Connection

Liebert® CRV4, 12 kW to 45 kW

Evaporator Coil Design

- The finned tube evaporator with high heat dissipation efficiency is used. R&D has produced evaporator designs with increased efficiency by ensuring that the refrigerant is distributed evenly in each loop.

Variable Capacity Brushless DC Inverter Compressor

- DC inverter compressor technology provides infinite variable capacity modulation between 30% - 100% to ensure precise repose to dynamic changing cooling demand.

- Improved reliability by reducing compressor cycling and component wear.

- Environment-friendly R410A refrigerant.

Additional

| Long Piping Kit | Steam Humidifier | Wind-leading Grill | PTC Heater |

Flexible Operations

- Variable capacity for different loading
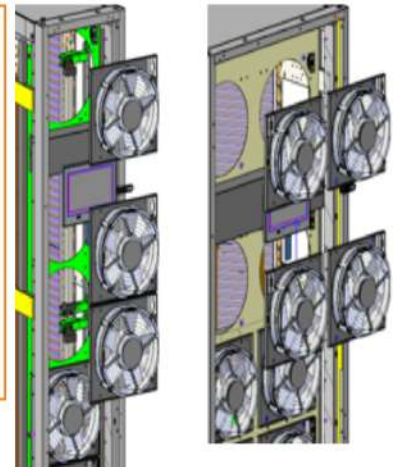- Air volume quantity can be varied as per load density

Diversified Allocation

- Best suited for >8kW/Rack load
- High heat density application with hot/cold aisle row cooling

Flexible Fan Operation

- The EC fan speed is automatically regulated by the CRV4 smart controller.

- High efficiency EC fans saves energy and its hot swappable design allows replacement while the unit is running.

Electronic Expansion Valve (EEV)

- Allows for integrated and optimal variable capacity control.

- Maintain constant superheat & dehumidification assistance.

Features

| Low Temp Kit | Dual Power | Air-filter Clog Switch | Water Leak Detector |

Lower Operational Cost

- High return temp design leads to more energy saving

- Small footprint releases space for IT equipment

High Reliability

- High degree precision controls by smart controller

- Better longevity

CRV4 Smart Controller, A Drive to the Highest Efficiency Levels

- 7" large touch screen color display with HMI version

- Advanced control algorithms allow the airflow and cooling to be modulated independently,

- Multiple control modes (six) for fan and compressor.

- Built in RS485 interface for Modbus,optional SNMP and TCP/IP interface

Intelligent Thermal Controls for Smarter Management

Make smarter decisions in your critical infrastructure space with integrated intelligent controls for ease of management. The Liebert CRV4 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

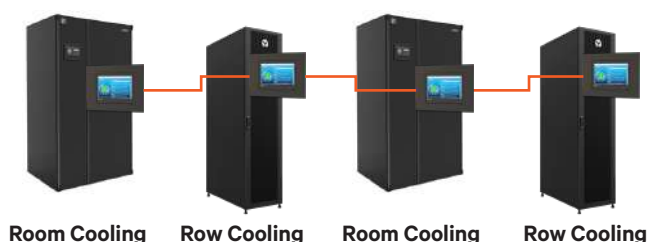| Rotation Control | Cascade Control | Alarm Standby Control | Unified Control | Remote Sensor Control |

- 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

Note: Liebert RDU to be purchase separately.

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.
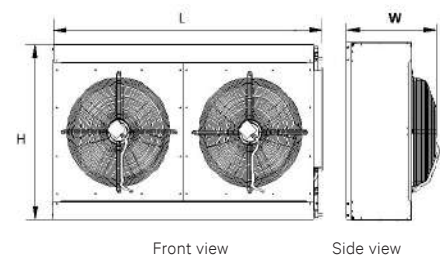
Technical Specifications

Model	CR012	CR025	CR035	CR045
Cooling Mode[1]	Air-cooled	Air-cooled	Air-cooled	Air-cooled
Total capacity (kW)[2]	13.9	28.8	40.9	47.5
Max airflow (m³/h)	4200	5500	8500	10200
Rated airflow (m³/h)	3200	5200	8000	9500
Reheat (kW)[3]	2	3	6	6
Humidifier (kg/h)	-	1.5	1.5	1.5
FLA (A)	19.1	24.1	33.4	45.7
Electrical Power	380 V to 415 V / 3 Ph / 50 Hz & 60 Hz			
Net weight (kg)	215	255	350	365
Dimension (RA model) (H x W x D) (mm)	2000 x 300 x 1100	2000 x 300 x 1100	2000 x 600 x 1100	2000 x 600 x 1100
Dimension (HA model) (H x W x D) (mm)	2000 x 300 x 1200	2000 x 300 x 1200	2000 x 600 x 1200	2000 x 600 x 1200

Liebert® CRV4 Condenser Configuration
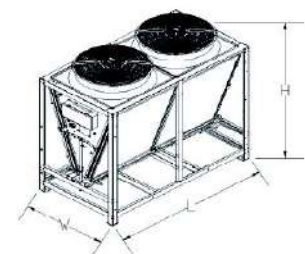
Liebert LSF Condenser (LxWxH)

Model	35 °C	40 °C	45 °C
CR012	LSF12-R3 (787x352x1240)	LSF12-R3 (787x352x1240)	LSF12-R3 (787x352x1240)
CR025	LSF38-R3 (1384x695x990)	LSF42-R3 (1584x695x1273)	LSF52-R3 (1584x695x1273)
CR035	LSF42-R3 (1584x695x1273)	LSF52-R3 (1584x695x1273)	LSF76-R3 (2384x695x1273)
CR045	LSF52-R3 (1584x695x1273)	LSF76-R3 (2384x695x1273)	LSF85-R3 (2384x695x1273)

Front view   Side view

Liebert® LSF™ Unit

Liebert LVC Condenser *Each LVC must pair with 2 identical CRV (LxWxH)

Model	35 °C	40 °C	45 °C
CR012	/	/	/
2 x CR025	/	LVC088 (2330x1100x1744)	LVC106 (2330x1100x1744)
2 x CR035	LVC088 (2330x1100x1744)	LVC106 (2330x1100x1744)	LVC152 (2330x1250x2222)
2 x CR045	LVC106 (2330x1100x1744)	LVC152 (2330x1250x2222)	LVC170 (2330x1250x2222)

Liebert® LVC™ Unit

Note:

1. Water Cooled option and 60kW model is available, please contact Vertiv local representative for more info.

2. Performance based on 37 °C return air temperature, 24% relative humidity and 45°C condensing temperature

3. If the required data is not listed in the table please contact Vertiv local representative.

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