Vertiv™ Liebert® CRV™

Intelligent, Integrated In-Row Infrastructure for the Data Center

Features & Benefits

Optimize your IT deployments with a highly efficient dedicated cooling solution

- Low total cost of ownership through the use of EC fans, unit-to-unit Teamworking, capacity modulation, and the variable speed compressor.
- Simultaneous top and bottom connections provide increased flexibility during installation.
- Reheat and humidification control.
- Connect up to 10 temperature sensors to one unit for enhanced temperature control.
- Easily monitor and control your IT system with integrated communication through BACnet, Modbus, and SNMP protocols.
- Built-in user-friendly display screen for setting temperature, humidity, and alarms.
- Multiple configurations and heat rejection options provide more flexibility when planning the site.
- Longer pipe runs allow for installation in a wider range of locations.

The Vertiv™ Liebert® CRV row-based cooling solution offers more than just highly efficient, dedicated cooling directly in front of your IT deployments. It offers peace of mind in knowing that your critical IT system is protected from suboptimal operating conditions.

The Liebert® CRV, row-based cooling unit is optimized to ensure maximum cooling capacity in a minimal footprint. Targeted for small and medium data centers, as well as edge computing locations, the unit provides cooling at the server rack level.

The Liebert CRV is designed to deliver optimal efficiency and availability of your IT deployments by transforming hot air from the rear of the equipment to cool air returning to server inlets. The Liebert® CRV is available in Direct Expansion, as well as Chilled Water versions and in two frame widths - 600 mm and a compact 300 mm. Providing full capacity and airflow modulation to match the servers' load, the unit is able to deliver energy savings via its compressor with capacity modulation, Electronic Expansion Valve and variable speed EC Fans. All this leads to very low operating costs with maximum availability.

The Liebert® CRV is a comprehensive row-based solution that includes all of the main functions fundamental to cooling units, such as cooling, humidification, dehumidification, reheating, air filtration, condensation management, temperature and humidity control, alarm functions and data communications.

Furthermore, the unit enhances its performances and energy efficiency through the Vertiv™ iCOM™ Control, capable of optimizing unit operations by leveraging on its intelligent management of system components.

All components are easily accessible from the front and the rear of the unit, simplifying service intervention.

The unit also allows ease of installation, through simplified cables and pipes routing from top and bottom of the unit.

Technical Specifications - Direct Expansion

	CRD10	CR019	CR020	CR035
Net Sensible Cooling Capacity[1] (kW)	10.0	20.0	23.0	36.7
Capacity Modulation Range	20-100%	20-100%	20-100%	20-100%
Rated Airflow, CFM (m^3/h)	1883 (3200)	2610 (4435)	2216 (3765)	1615 (2744)
Electric Reheat Capacity[2] (kW)	-	-	6.0 (460V) 4.9 (208V)	6.0 (460V) 4.9 (208V)
Humidification Capacity[2], lb/hr (kg/h)	-	-	5 (2.3)	5 (2.3)
Air Filtration	MERV 8	MERV 1	MERV 8	MERV 8
Remote Monitoring	HTTP / SNMP / Modbus / BACnet			
Piping and Cabling connections	Top & Bottom	Top & Bottom	Top & Bottom	Top & Bottom
Dimensions (W x D x H), mm	300 x 1132 x 2000	300 x 1132 x 2000	600 x 1132 x 2000	600 x 1132 x 2000
Unit Weight, lbs (kg)	509 (231)	507 (230)	739 (235)	805 (365)
Refrigerant Type	R410A	R410A	R410A	R410A

[1]Test conditions: 95 °F, 23% Return Air, 95 °F outdoor

[2]Electric reheat and humidifier are optional configurations and are not standard

Environmental Requirements

Operating Temperatures, °F (°C)	64 to 104 (18 to 40)	75 to 110 (24 to 43)	75 to 110 (24 to 43)	75 to 110 (24 to 43)
Storage Temperatures, °F (°C)	-40 to 158 (-40 to 70)	-4 to 122 (-20 to 50)	-4 to 122 (-20 to 50)	-4 to 122 (-20 to 50)
Max Piping Length, ft (m)	300 (91)	300 (91)	300 (91)	300 (91)

Electrical Requirements

Input Voltage Options	208-230V, 1ph, 60Hz 208-230V, 3ph, 60Hz	208-230V, 3ph, 60Hz 460V, 3ph, 60Hz-Wye	208V, 3ph, 60Hz 460V, 3ph, 60Hz	208V, 3ph, 60Hz 460V, 3ph, 60Hz
FLA (A), with Reheat	-	-	50.8 (208V) 24.2 (460V)	62.0 (208V) 32.2 (460V)
FLA (A), No Reheat no Humidifier	23.9 (1ph) 16.8 (3ph)	33.4 (208-230V) 16.8 (460V)	34.2 (208V) 16.7 (460V)	45.4 (208V) 24.7 (460V)
FLA (A), No Reheat with Humidifier	-	-	42.6 (208V) 20.4 (460V)	53.8 (208V) 28.4 (460V)

Condenser Matchup Table

	Outdoor Ambient Temperature, °F (°C)					
Standard Sound Mode	**95 (35)**	**100 (38)**	**105 (41)**	**110 (43)**	**115 (46)**	**120 (49)**
CR019RA	MCS028E1	MCM040E1	MCM040E1	MCM040E1	MCL055E1	MCL055E1
CR020RA	MCS028E1	MCM040E1	MCM040E1	MCM040E1	MCL055E1	MCL055E1
CR035RA	MCM040E1	MCL055E1	MCL055E1	MCM080E1	MCM080E1	MCM080E1
Low Sound Mode	**95 (35)**	**100 (38)**	**105 (41)**	**110 (43)**	**115 (46)**	**120 (49)**
CR019RA	MCS028E1	MCM040E1	MCL055E1	MCL055E1	MCM080E1	-
CR020RA	MCS028E1	MCM040E1	MCL055E1	MCL055E1	MCM080E1	-
CR035RA	MCL055E1	MCL055E1	MCM080E1	MCM080E1	MCM110E1	-

NOTE: Match-ups for Low Noise Mode are based on Liebert® MC Condenser fan set at 80% maximum fan speed. Low Noise Mode is controlled by the Liebert® CRV iCOM™ control and must be linked to the Liebert® MC by the standard CANbus communication wires, field-supplied. Liebert® Lee-Temp receiver must be added to the Liebert® MC for proper head pressure control. Contact the factory for match-ups if sound requirements are more stringent than 80% fan speed will yield.

Technical Specifications - Water / Glycol

	CR019	CR020	CR035
Net Sensible Cooling Capacity[1] (kW)	21.1	23.6	37.6
Capacity Modulation Range	20-100%	20-100%	20-100%
Rated Airflow, CFM (m^3/h)	2610 (4435)	2216 (3765)	1615 (2744)
Electric Reheat Capacity[2] (kW)	-	6.0 (460V) 4.9 (208V)	6.0 (460V) 4.9 (208V)
Humidification Capacity[2], lb/hr (kg/h)	-	5 (2.3)	5 (2.3)
Air Filtration	MERV 1	MERV 8	MERV 8
Remote Monitoring		HTTP / SNMP / Modbus / BACnet	
Piping and Cabling connections	Top & Bottom	Top & Bottom	Top & Bottom
Dimensions (W x D x H), mm	300 x 1132 x 2000	300 x 1132 x 2000	600 x 1132 x 2000
Unit Weight, lbs (kg)	545 (247)	772 (250)	849 (385)
Coolant Type	Water / Glycol	Water / Glycol	Water / Glycol

[1]Test conditions: 95°F DB[1], 67.7°F WB, 52°F DP, 23% RH, 83°F (28.3°C) Entering and 95°F (35°C) Leaving Fresh Water Temperatures
[2]Electric reheat and humidifier are optional configurations and are not standard

Environmental Requirements

Operating Temperatures, °F (°C)	75 to 110 (24 to 43)
Storage Temperatures, °F (°C)	-4 to 122 (-20 to 50)
Max Piping Length, ft (m)	300 (91)
Maximum Water Pressure, psi (kPa)	230 (1586)
Maximum Close-Off Pressure, psi (kPa)	43.5 (300)
Minimum Entering Water Temperature, °F (°C)	45 (7.2)

Electrical Requirements

Input Voltage Options	208-230V, 3ph, 60Hz 460V, 3ph, 60Hz-Wye	208V, 3ph, 60Hz 460V, 3ph, 60Hz	208V, 3ph, 60Hz 460V, 3ph, 60Hz
FLA (A), with Reheat	-	50.8 (208V) 24.2 (460V)	62.0 (208V) 32.2 (460V)
FLA (A), No Reheat no Humidifier	33.4 (208-230V) 16.8 (460V)	34.2 (208V) 16.7 (460V)	45.4 (208V) 24.7 (460V)
FLA (A), No Reheat with Humidifier	-	42.6 (208V) 20.4 (460V)	53.8 (208V) 28.4 (460V)

Drycooler Matchup Table	Outdoor Ambient Temperature, °F (°C)		
Standard Sound Mode	**95 (35)**	**100 (38)**	**105 (41)**
CR019RW	DSF112_8	DSO174_8	DSO225_16
CR020RW	DSF112_8	DSO174_8	DSO225_16
CR035RW	DSO197	DSO310_16	DSO419_16

NOTE: Drycooler recommendations based on one drycooler per indoor unit, 40% propylene glycol, 75°F/45% RH unit return air conditions. Consult factory for match-up needs using multiple indoor units, different return air conditions or alternate glycol temperatures.

Technical Specifications - Chilled Water

	CR032	CR040	CR050
Net Sensible Cooling Capacity[1] (kW)	27.1	46.3	53.2
Capacity Modulation Range	0-100%	10-100%	10-100%
Rated Airflow, CFM (m^3/h)	2500 (4247)	3620 (6150)	6000 (10194)
Electric Reheat Capacity[2] (kW)	-	6.0 (460V) 4.9 (208V)	
Humidification Capacity[2], lb/hr (kg/h)	-	5 (2.3)	-
Air Filtration	MERV 1	MERV 8	MERV 8
Remote Monitoring		HTTP / SNMP / Modbus / BACnet	
Piping and Cabling connections	Top & Bottom	Top & Bottom	Top & Bottom
Dimensions (W x D x H), mm	300 x 1100 x 2000	600 x 1100 x 2000	600 x 1100 x 2000
Unit Weight, lbs (kg)	418 (190)	728 (330)	753 (342)
Coolant Type	Chilled Water	Chilled Water	Chilled Water

[1]Test conditions: 95°F DB[1], 67.7°F WB, 52°F DP, 23% RH, 45°F EWT, 55°F LWT (CR050: 55°F EWT, 68°F LWT)

[2]Electric reheat and humidifier are optional configurations and are not standard

Operating Conditions

Maximum Water Pressure, psi (kPa)	325 (2241)		
Maximum Close-Off Pressure, psi (kPa)	200 (1379)		
Minimum Entering Water Temperature, °F (°C)	40 (4.4)		

Electrical Requirements

Input Voltage Options	208-230V, 3ph, 60Hz 208-230V, 1ph, 60Hz 120V, 1ph, 60Hz 460V, 3ph, 60Hz-Wye	208V, 3ph, 60Hz 460V, 3ph, 60Hz	460V, 3ph, 60Hz
FLA (A), with Reheat	-	24.9 (208V) 12.2 (460V)	-
FLA (A), No Reheat no Humidifier	14.6 (120V) 12.3 (208-230V, 1Ph) 7.5 (208-230V, 3Ph) 4.3 (460V)	8.3 (208V) 4.7 (460V)	10.41 (460V)
FLA (A), No Reheat with Humidifier	-	16.7 (208V) 8.4 (460V)	-