



Vertiv™ Liebert® XDC

High-Density Cooling Solution
with Associated Cooling Modules

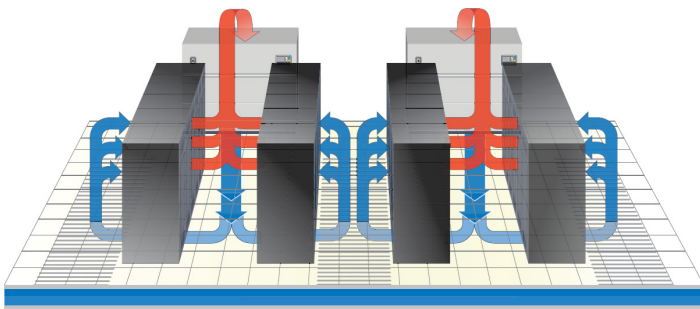


Tight Space + High Computing = High Heat Density

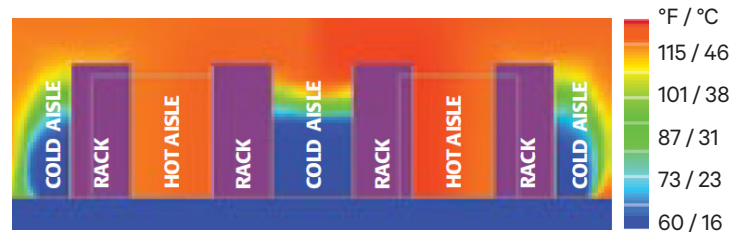
Blade servers, communications switches, and other electronic gadgets are being packed into the confined spaces. Computing capacity that once filled an entire room is now contained in a single rack — creating extreme power and heat densities, and to nullify the hot spots or zones require dedicated cooling solutions. However, for extremely high heat density scenarios, conventional approaches simply consume too much floor space, thus a different approach is needed.

The Cold Aisle is Feeling a Bit Hot

The common practice to improve the performance of existing raised-floor cooling applications is the “hot aisle/cold aisle” approach. Unfortunately, despite using hot/cold aisles arrangement, as rack heat loads increase, the standard underfloor cooling reaches to its limitation.



Heat Load = 10 kW Per Rack With Hot Aisle/ Cold Aisle Layout



Heat Load = 15 kW Per Rack With Hot Aisle/ Cold Aisle Layout

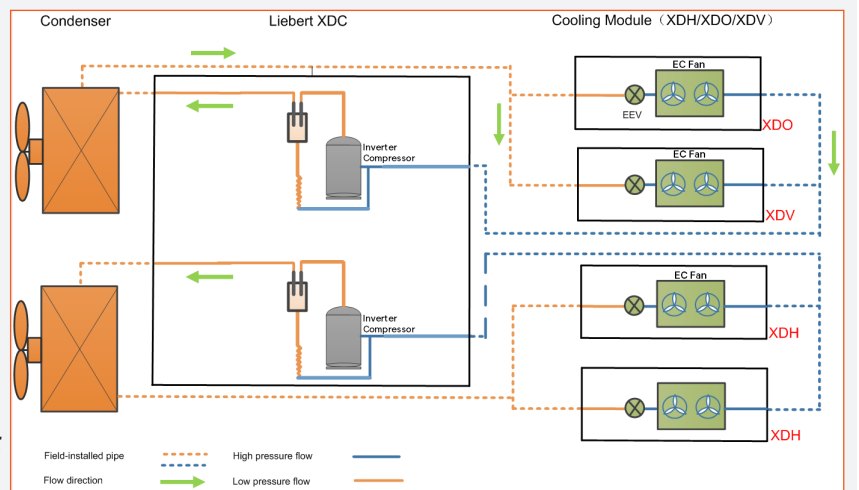
Side views of Computational Fluid Dynamics (CFD) by fluent showing limitations of hot aisle/cold aisle approach as heat load increases.

Vertiv™ Liebert® XDC & Cooling Modules: Flexible Approaches for High Heat Density Cooling

Vertiv™ Liebert® XDC mission-critical cooling systems are specifically designed to address tightly packed electronic rack enclosures that generate higher heat loads in association with different configuration of cooling modules - Vertiv™ Liebert® XDV, Vertiv™ Liebert® XDO & Vertiv™ Liebert® XDH.

This new configuration of Liebert XDC does have inverter compressor system, connected with heat rejection unit & other end is connected with necessary cooling modules.

This system does not require any pump, heat exchanger, secondary refrigerant / coolant.



Benefits



Lowest Total Cost of Ownership

- Vertiv™ Liebert® XDC & associated cooling modules create significant amount of energy saving
- Zero or minimal floor space requirements (depending on cooling module)



Flexibility

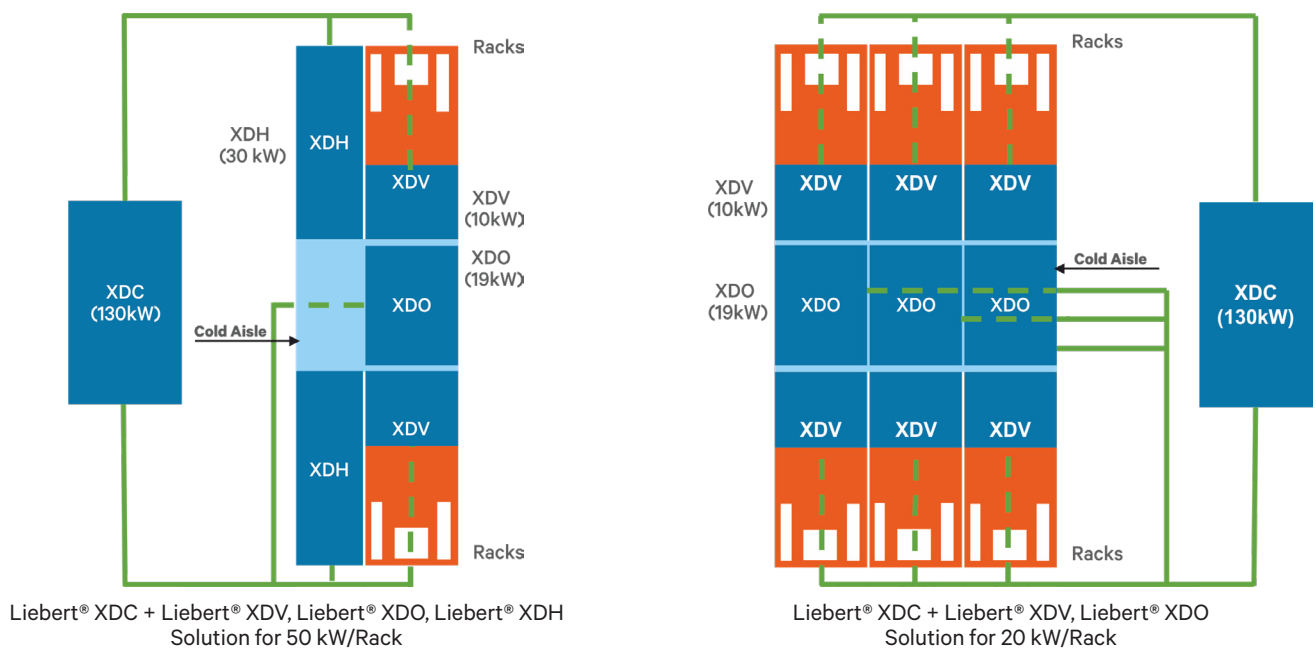
- Floor-mount, rack-mount, and ceiling-mount modules, plus a choice of cooling capacity
- Plug and play installation for future expansion



Availability

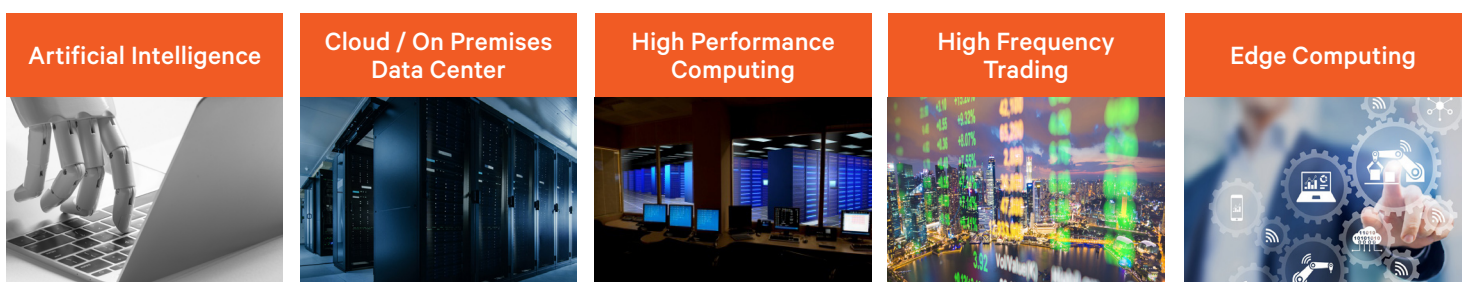
- Refrigerant based system - safe to use on electronic equipment
- Cooling modules can distribute cold air evenly to minimize hot spot

Liebert® XDC Serves High-Density with Minimal Space



- Cooling systems that provide up to 50 kW/rack cooling or 20 kW/rack with minimum/zero footprint.
- Liebert XDC provides 130 kW at standard conditions and up to 150 kW at higher return temperatures (additional 15% cooling capacity for emergency cooling or high heat load).

Potential Applications for Liebert XDC & Cooling Module Solutions



Vertiv™ Liebert® XDC

When No Building Chilled Water Available...

The Liebert XDC main unit is a large, multi-connected precision environment control equipment suitable for medium and large computer rooms, modular computer rooms, and similar ecosystems. This unit not only caters to high heat density but also addresses reliability requirements while saving a significant amount of energy.

Liebert XDC is highly effective and efficient in solving the problem of heat dissipation in server rooms with high heat densities issues, and is installed where cooling load changes drastically and adequate supply of building chilled water is not available.



Features:

- A single unit can cool up to 130 kW (at inlet air temperature for cooling modules 35 °C dB, 26% RH)
- Supports 30 kW per rack load density
- Available in both In-Row & Room type configurations
- Supports variable load as equipped with inverter driven compressor
- Equipped with intelligent controller
- Supports all kind of cooling modules such as Vertiv™ Liebert® XDH (row), Vertiv™ Liebert® XDO (overhead), Vertiv™ Liebert® XDV (over rack).
- An energy-efficient refrigerant (R410A) is used.

Specification of Liebert® XDC

Parameters	Unit Type Liebert® XDC130
Total Capacity (kW) (Inlet air temperature to cooling modules) ¹	130
Total Capacity (kW) (Inlet air temperature to cooling modules) ²	150
Dimension (WxDxH) (mm)	600x1100x1944
Net Weight (kg)	320
Power Supply	380 V to 415 V (-10% to +6%)V, 50 Hz, 3N

1. @ 35 °C dB 26% RH.

2. @ 40 °C dB 20% RH.

Vertiv™ Liebert® XDH

The modular, Liebert XDH horizontal row cooler provides efficient and economical cooling for high heat density equipment. The Liebert XDH is placed in line with rack enclosures and air is directly drawn from the hot aisle through the rear side of the unit, cooled and discharged into the cold aisle where the electronic equipment air inlets are located. Thus, allowing the unit to take advantage of higher heat transfer efficiency from the hot aisle.

Liebert XDH is being deployed where per rack load is up to 30 kW; the cooling modules can be placed in a row along with heat sources i.e. server racks.

The Liebert XDH is a part of our high heat density cooling product family that utilizes environment efficient refrigerant technology.



Features:

- Scalable
- Can cool up to 30 kW per rack
- Flexible installation — mounts on row of the cabinet
- Excellent for spot and zone cooling
- Equipped with an EEV
- EC fan as a standard offering
- Comes with an air filter
- Min 2 nos. of Liebert XDH and max 6 nos. of Liebert XDH can be deployed as cooling modules with a single Liebert XDC

Specification of Liebert® XDH

Parameters		Unit Type Liebert® XDH030
Total Capacity (kW) (Inlet air temperature to cooling modules) ¹		27.4
Total Capacity (kW) (Inlet air temperature to cooling modules) ¹		32.0
Net Weight (kg)		160
Filter	Grade	G2
	Number	2
Standard Airflow m ³ /h		6000
Maximum Airflow m ³ /h		6900
Fans	Number of Fans	7
	Static Pressure (Pa)	0-20
	Standard Power Consumption (SP 0 Pa) (kW)	0.90
Power Supply		220 V to 240 V (±10%)V, 50 Hz/60 Hz

1. @ 35 °C dB 26% RH.

2. @ 40 °C dB 20% RH.

Vertiv™ Liebert® XDO

The Liebert XDO precision air conditioner inherits high sensible heat ratio and a large air volume. It uses R410A, environment efficient refrigerant. The finned tube heat exchanger with a sophisticated design and layout provides excellent heat exchanging performance. The EC fan with large air volume and low energy consumption makes the system run more energy-efficient; the electronic expansion valve intelligently controls the uniform distribution of refrigerant flow and effectively solves the heat dissipation problem of the high heat density server cabinet.

The Liebert XDO draws in hot air through two opposite inlets and discharges cool air down into the cold aisle where the electronic equipment air inlets are located.

This flexible, scalable, and space saving product mounts at the ceiling — requiring zero floor space.



Features:

- Can cool up to 20 kW/rack
- No floor space required & Scalable
- Excellent for spot and zone cooling
- Flexible installation with several connection possibilities
- Equipped with an EEV
- Equipped with in-built drain pump
- EC fan as a standard offering
- Min 4 nos of Liebert XDO and max 8 nos of Liebert XDO can be deployed as cooling modules with a single Liebert XDC.

Specification of Liebert® XDO

Parameters	Unit Type Liebert® XDO020	
Total Capacity (kW) (Inlet air temperature to cooling modules) ¹	19.8	
Total Capacity (kW) (Inlet air temperature to cooling modules) ¹	22.0	
Net Weight (kg)	110	
Filter	Grade	G2
	Number	2
Fans	Standard Airflow m ³ /h	3700
	Maximum Airflow m ³ /h	4500
	Number of Fans	4
	Static Pressure (Pa)	0-20
Standard Power Consumption (SP 0 Pa) (kW)	0.45	
Power Supply	220 V to 240 V (±10%)V, 50 Hz/60 Hz	

1. @ 35 °C dB 26% RH.

2. @ 40 °C dB 20% RH.

Vertiv™ Liebert® XDV

The Liebert XDV precision air conditioner inherits high sensible heat ratio and a large air volume. It uses R410A, environment efficient refrigerant. The finned tube heat exchanger with a sophisticated design and layout provides excellent heat exchanging performance. The EC fan with large air volume and low energy consumption make the system run more energy-efficient; the electronic expansion valve intelligently controls the uniform distribution of refrigerant flow and effectively solves the heat dissipation problem of the high heat density server cabinet.

Liebert XDV is mounted on top of the cabinet, therefore requires zero floor space. The modular and adaptive design of the Liebert XDV unit also allows it to be easily added as the demand for cooling increases. It can either draw in hot air directly from inside the cabinet or from the hot aisle and discharge cool air down into the cold aisle where the electronic equipment air inlets are located.



Features:

- Scalable
- Can cool up to 10 kW per rack
- No floor space required
- Flexible installation — mounts on top of the cabinet or suspended from the ceiling
- Excellent for spot and zone cooling
- Equipped with an EEV
- Equipped with in-built drain pump
- EC fan as a standard offering
- Min 6 nos of Liebert XDV and max 16 nos of Liebert XDV can be deployed as cooling modules with a single Liebert XDC.

Specification of Liebert® XDV

Parameters	Unit Type Liebert® XDV010	
Total Capacity (kW) (Inlet air temperature to cooling modules) ¹	10.1	
Total Capacity (kW) (Inlet air temperature to cooling modules) ¹	11.2	
Net Weight (kg)	60	
Filter	Grade	G2
	Number	1
Standard Airflow m ³ /h		1675
	Maximum Airflow m ³ /h	2000
Fans	Number of Fans	2
	Static Pressure (Pa)	0-20
Standard Power Consumption (SP 0 Pa) (kW)	0.27	
Power Supply	220 V to 240 V (±10%)V, 50 Hz/60 Hz	

1. @ 35 °C dB 26% RH.

2. @ 40 °C dB 20% RH.

