

# Vertiv™ CoolPhase Flex

A highly efficient, easily installed all-in-one liquid and air-packaged cooling solution



## Key benefits:

- Future-ready** - Deploy as either liquid cooling or air cooling today and rapidly change in the future to meet current business needs.
- Versatile solutions** - Enable teams to meet the data center's current and future needs. Whether liquid, air, or a combination of both, Vertiv CoolPhase Flex's refrigerant-based heat rejection technology uses standardized or mixed-rack density designs for a modular and scalable approach.
- Rapidly deploy and adapt** - Convert between air and liquid cooling in as little as four hours with no additional internal components required. With minimal onsite construction needed to install Vertiv CoolPhase Flex, data centers can begin operations almost immediately.
- Uncompromised efficiency** - Automatically switch to free cooling modes whenever external conditions are appropriate with pumped refrigerant economization (PRE) technology.
- Space savings** - Free up valuable whitespace as Vertiv CoolPhase Flex is a self-contained packaged system installed outside the data center.
- Cost savings** - Simultaneously deliver lower total cost of ownership (TCO) with the flexibility to choose between air cooled and liquid cooled deployments as Vertiv CoolPhase Flex needs no major infrastructure overhauls.

Designed for evolving cooling requirements, Vertiv™ CoolPhase Flex is a liquid and air-cooled packaged system designed for high-density applications—a first of its kind in the industry. Deploy this hybrid cooling solution initially as either air or liquid cooling, and if the need arises, convert the unit in the field in as little as four hours to support current business needs.

## Cooling deployed today, designed for tomorrow.

High-performance computing (HPC) is rapidly changing the data center landscape, making it difficult for some operators to keep up with their business needs.

Through close collaboration with industry partners, Vertiv defined a vision for a forward-looking cooling solution with the Vertiv™ CoolPhase Flex packaged system.

The Vertiv CoolPhase Flex packaged cooling system can be deployed as an air cooling solution, operating as a legacy Vertiv™ Liebert® DSE packaged unit, or as a liquid cooling solution for high-density requirements. This flexibility—to deploy either air or liquid and subsequently convert as needed—provides businesses with the confidence to solve current problems while anticipating future requirements with minimal operational disruptions.

The popularization of AI pushed the development of new and advanced cooling technologies to prevent downtime, enable agility and flexibility, and adapt for future business growth. The Vertiv CoolPhase Flex delivers all that and more.

## Key product features:

- Air and liquid cooling components installed as standard.
- Up to 400kW with capacity modulation.
- Economizer operation for increased efficiency by utilizing free cooling whenever conditions allow.
- Integrated UPS for liquid cooling backup power.
- Built-in controls enable multiple units to work together in a single cooling system.



Vertiv™ CoolPhase Flex

## Physical data

|   |   |
|---|---|
| Unit dimensions (H x W x D), m (in)     | 7004 x 4073 x 3989 (275.75 x 157.06 x 160.38) |
| Shipping dimensions (H x W x D), m (in) | 7112 x 4013 x 4115 (280 x 158 x 162)          |
| Weight, kg (lbs)                        | 12,645 (27,878)                               |
| Shipping weight, kg (lbs)               | 12,767.5 (28,148)                             |

## Performance data

|  |  |
|--|--|
| Maximum air cooling capacity, kW <sup>1</sup>    | 473  |
| Maximum liquid cooling capacity, kW <sup>2</sup> | 544  |
| Maximum liquid cooling flow rate, gpm            | 200  |
| Liquid cooling pump                              | 15HP   |
| Primary loop fluid                               | R410A  |
| Secondary loop fluid                             | Water / Water-glycol                                 |
| Secondary loop size                              | 3" Stainless Steel                                   |
| Secondary loop filtration                        | 500μ   |
| Noise level at 3m (10ft)                         | < 72 dBA (Sound Pressure)                            |
| Available head pressure, PSI (kPa)               | Water: 44 psi (303.4 kPa). PG25: 42 psi (289.6 kPa). |
| Service access                                   | Front and Rear                                       |
| Communication protocols                          | SNMPv1/v2c/v3, HTTP, SMTP, SMS                       |

1. Nominal air capacity conditions: Air 105°F RA, 95°F OD.

2. Nominal liquid capacity conditions: 80°F SWT, 95°F OD.

## Electrical data

|                                     |   |
|-------------------------------------|---|
| Power supply                        | 460V / 60Hz / 3Ph   |
| FLA (Full load amps)                | 302.6   |
| WSA (Wire size amps)                | 307.8   |
| OPD (Overcurrent protection device) | 350   |
| SCCR (Short circuit current rating) | 65,000  |
| Power feeds (with ATS)              | Single Disconnect, Dual Disconnect, Dual Disconnect w UPS |

## Ambient conditions

|                      |   |
|----------------------|---|
| Operating conditions | 0 to 40C (0 - 104F), 10 to 90% RH (non-condensing)    |
| Storage conditions   | -40 to 70C (-40 - 158F), 5 to 93% RH (non-condensing) |

## Compliance

|                   |             |
|-------------------|-------------|
| Safety compliance | cULus, RoHS |
|-------------------|-------------|



## Air cooling

| RAT (°F) | SAT (°F) | DP (°F) | ESP (inwc) | Outdoor Ambient (°F) | Total Capacity kW (net) | Sensible Capacity kW (net) | Unit Power (kW) | SCOP |
|----------|----------|---------|------------|----------------------|-------------------------|----------------------------|-----------------|------|
| 85       | 67       | 52      | 0.5        | 95                   | 391                     | 391                        | 166             | 2.35 |
| 95       | 74       | 52      | 0.5        | 95                   | 442                     | 442                        | 168             | 2.64 |
| 105      | 82       | 52      | 0.5        | 95                   | 473                     | 473                        | 169             | 2.80 |

\*Data recorded at 100% Load.

\*Data captured using high flow condenser fans (1200 RPM max).

## Liquid cooling (Water)

| ODT (°F) | SWT (°F) | RWT (°F) | ESP (ft-h <sub>2</sub> o) | Water Flow Rate (GPM) | Net Cooling Capacity (kW) | Unit Power (kW) | SCOP |
|----------|----------|----------|---------------------------|-----------------------|---------------------------|-----------------|------|
| 70       | 65       | 90.4     | 35                        | 130                   | 482                       | 83.3            | 5.78 |
| 75       | 65       | 90.3     | 35                        | 130                   | 481                       | 107.0           | 4.50 |
| 80       | 65       | 90.0     | 35                        | 130                   | 473                       | 114.7           | 4.12 |
| 85       | 65       | 89.5     | 35                        | 130                   | 462                       | 118.5           | 3.90 |
| 90       | 65       | 88.8     | 35                        | 130                   | 450                       | 122.2           | 3.68 |
| 95       | 65       | 88.0     | 35                        | 130                   | 436                       | 126.1           | 3.46 |
| 100      | 65       | 87.5     | 35                        | 130                   | 426                       | 130.7           | 3.26 |
| 105      | 65       | 86.8     | 35                        | 130                   | 413                       | 135.7           | 3.04 |
| 110      | 65       | 86.2     | 35                        | 130                   | 401                       | 141.2           | 2.84 |
| 115      | 65       | 85.4     | 35                        | 130                   | 387                       | 147.5           | 2.63 |
| 120      | 65       | 84.6     | 35                        | 130                   | 373                       | 156.2           | 2.39 |

\*Data recorded at 100% Load.

\*Data captured using high flow condenser fans (1200 RPM max).

## Liquid cooling net capacity kW (Water)

| SWT (°F) | 95°F ODT | 100°F ODT | 105°F ODT | 110°F ODT | 115°F ODT | 120°F ODT |
|----------|----------|-----------|-----------|-----------|-----------|-----------|
| 65       | 436      | 426       | 413       | 401       | 387       | 373       |
| 70       | 470      | 458       | 447       | 434       | 420       | 408       |
| 75       | 509      | 495       | 482       | 469       | 454       | 441       |
| 80       | 544      | 532       | 518       | 504       | 490       | 477       |

\*Data recorded at 100% Load, 130 GPM Flow, and 35ft-H<sub>2</sub>O ESP

\*Data captured using high flow condenser fans (1200 RPM max).