Vertiv™ Coolant Distribution Unit (CDU) – XDU450

Energy and space efficient liquid cooling High-Performance Computing (HPC) and data center applications

The Vertiv™ XDU450 Coolant Distribution Unit (CDU) provides effective separation of the facility circuit and secondary circuit via a high efficiency HX (heat exchanger) with the devices to be cooled, including Rear Door Heaters, In-row Coolers, Direct Chip cooling.

Ensures that the cooling fluid in a data center environment can be kept to a minimum volume, is closely controlled for flow, pressure & temperature and can be accurately maintained for fluid quality.

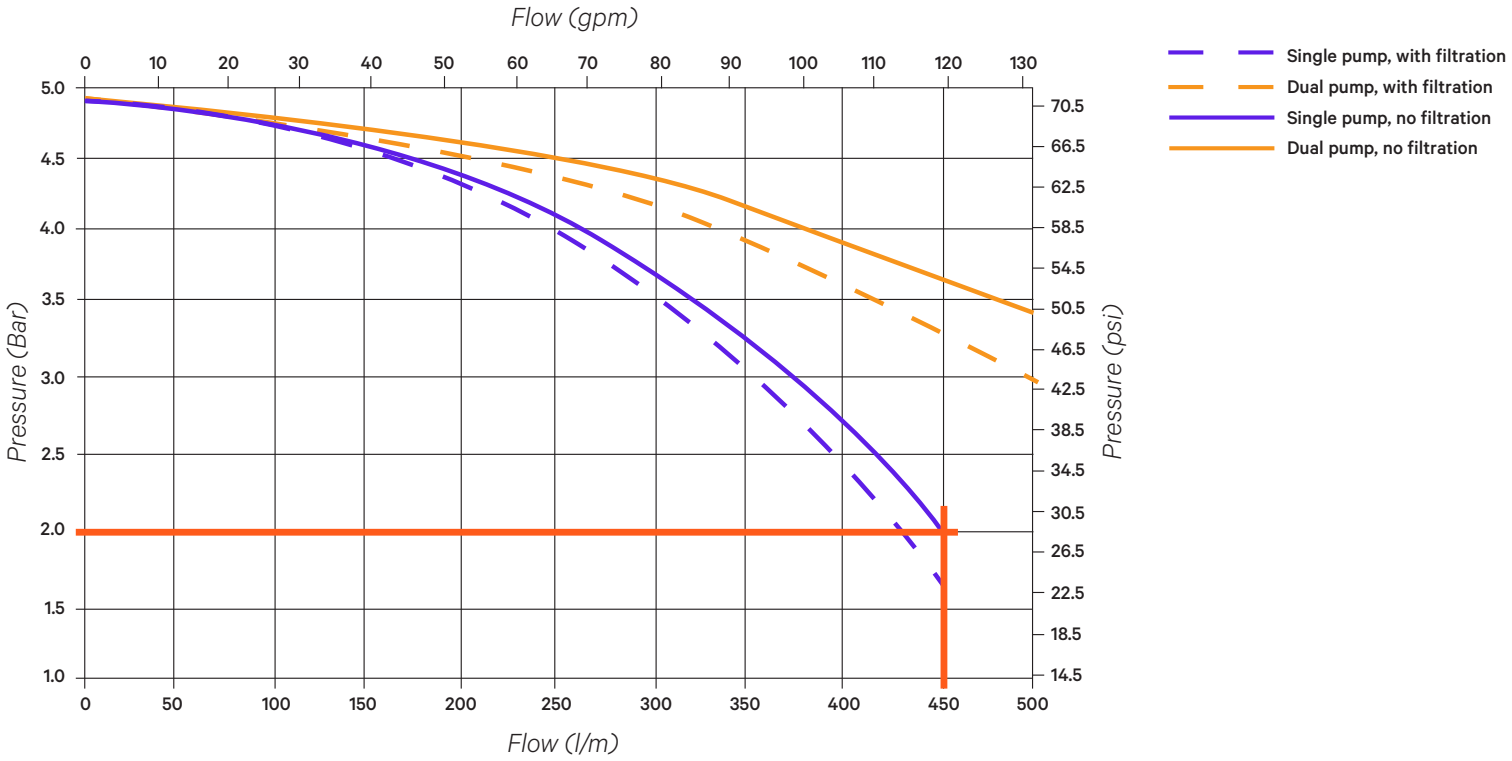
Dual pumps and inverters for redundancy

- Secondary circuit flow of 132 gpm (500 l/m) at 36 psi (2.5 bar) external DP
- Low pressure drop 2.5 in. pipe-work, components and heat exchanger
- Two inverters, controlled via RS485 enables detailed reporting of data, status,seamless pump change-over, and dual pump running mode
- Large heat exchanger for low “Approach Temp Diff” 450 kW at 7.2 °F (4.0 °C)
- Effective separation of primary/ secondary water circuits
- All stainless-steel secondary circuit with self-filling and venting capability
- Large dual redundant secondary filters at 50µ and primary filter at 500µ for concurrent maintainability.
- Large capacity dual redundant expansion vessels
- Easy to install, pipe connection options including internal manifold
- Low center of gravity, helps with Seismic compliance and logistics
- 7 in. color touchscreen Human-Machine Interface (HMI) and ARM Cortex M7 basedcontroller
- Communication via Modbus RTU (RS485) and TCP/IP protocols
- Triple redundant secondary supply sensors and redundant RH sensors
- •Fully configurable for various installation options and features
- •CE, cULus and IEC compliant

Performance:

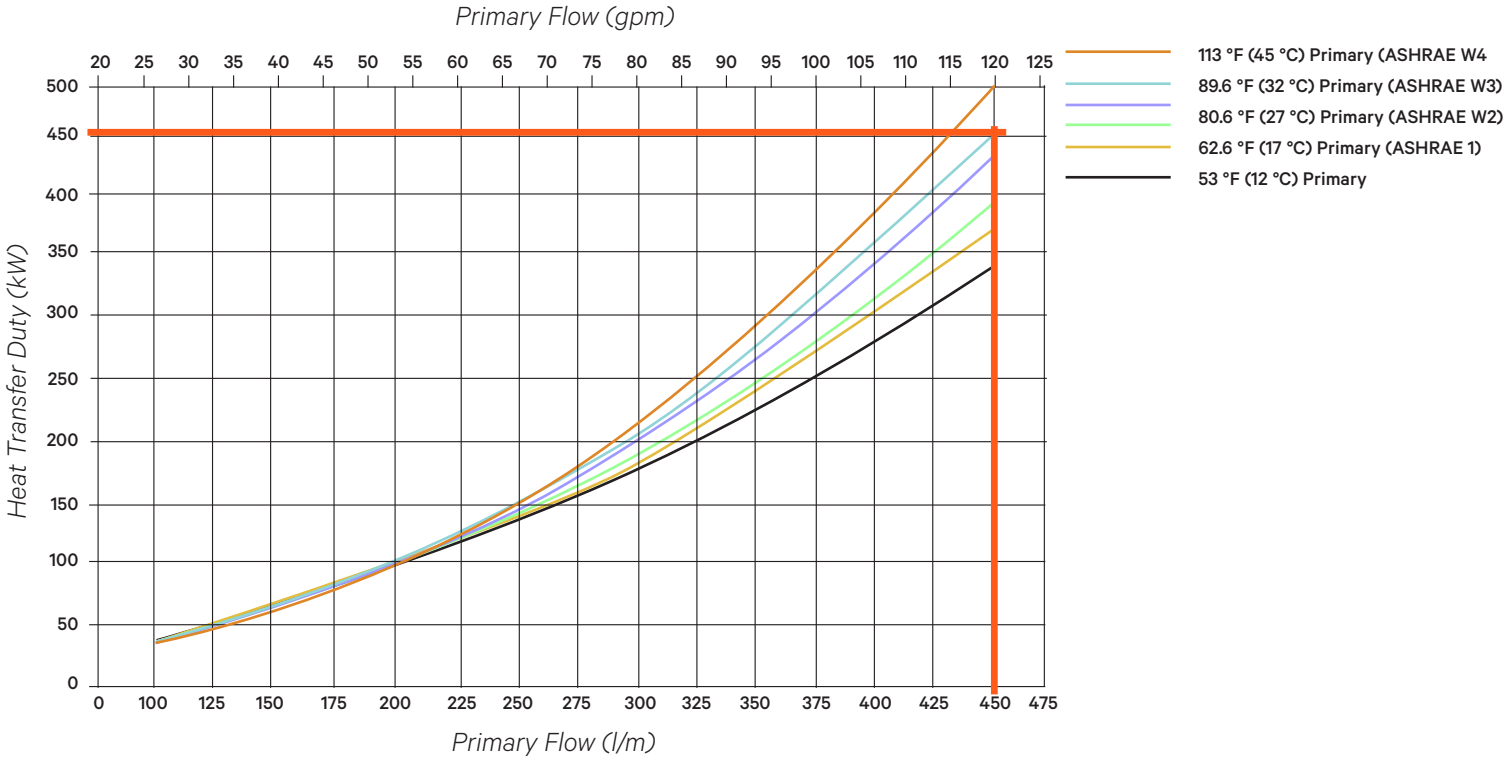
119 gpm (450 l/m) at 29 psi (2.0 bar) differential pressure external to XDU450

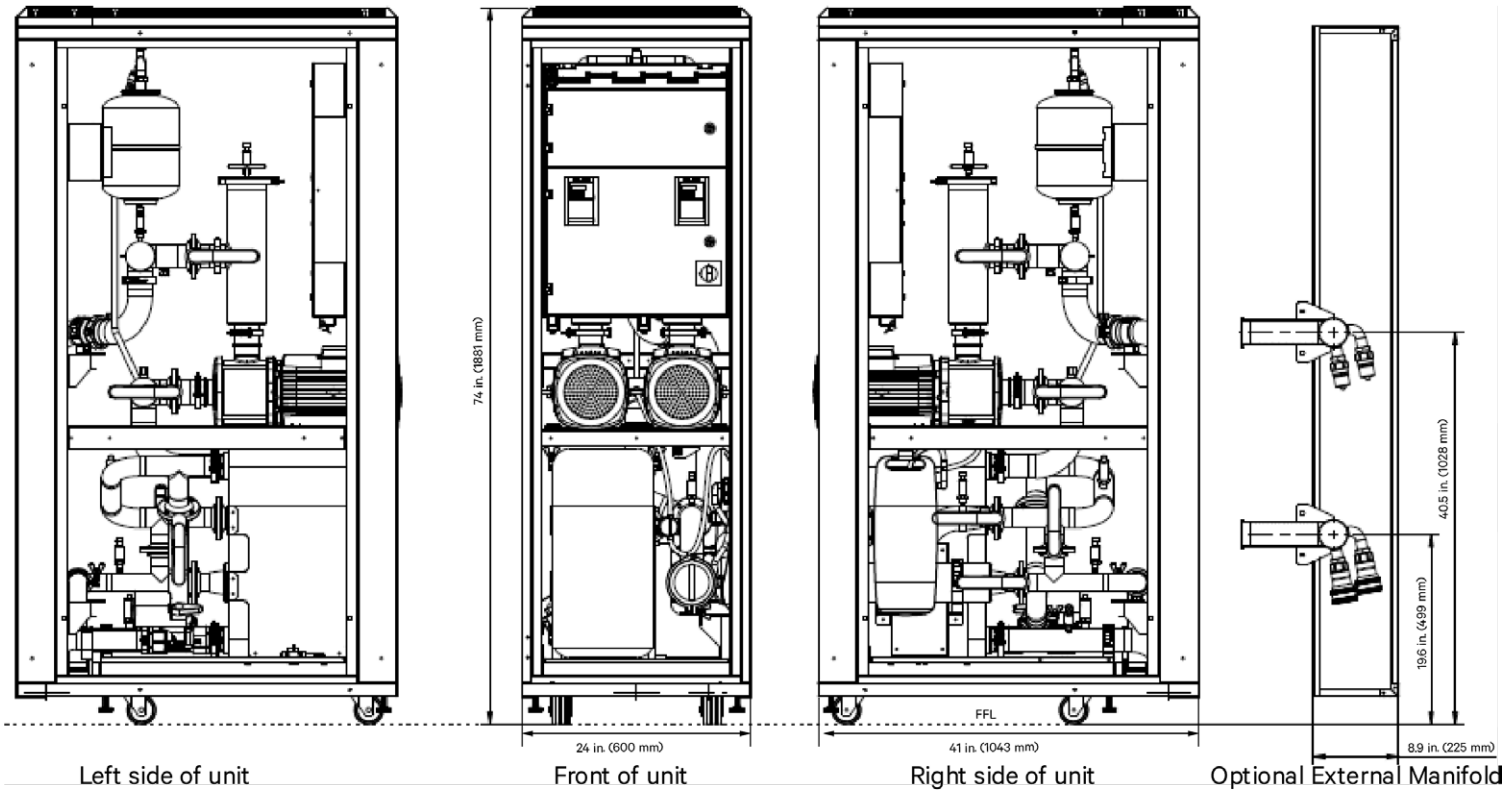
External Differential Pressure



453 kW Heat Transfer at 7.2 °F (4.0 °C) ATD – facility water at 89.6 °F (32 °C)

Primary Flow/Temperature Graph for 7.2 °F (4 °C) ATD




74 in. (1881 mm)
24 in. (600 mm)
FFL
41 in. (1043 mm)
40.5 in. (1028 mm)
19.6 in. (499 mm)
8.9 in. (225 mm)
Left side of unit
Front of unit
Right side of unit
Optional External Manifold

XDU450 FDU Specification:

Nominal Cooling Capacity	453 kW at 7.2 °F (4.0 °C) Approach Temperature Difference (ATD)
Maximum Cooling Capacity	975 kW at 14.4 °F (8.0 °C) Approach Temperature Difference (ATD)
Maximum Flow – Single Pump Running	119 gpm (450 l/m) at 29 psi (2.0 bar) External Differential Pressure to FDU (DP)
Maximum Flow – Dual Pump Running for N+ operation	132 gpm (500 l/m) at 49.3 psi (3.4 bar) External Differential Pressure to FDU (DP)
Secondary Coolant Type	Water, water/glycol or any compatible sensible phase liquid
Primary Coolant Type	Water, water/glycol
Pump Redundancy	Single pump (N), dual pumps (N+N) or dual pump run mode
Primary Pressure Drop	11.5 psi (0.8 bar) at typical 79.2 gpm (300 l/m) with 20% glycol
Secondary Coolant Temperature Range	50 to 131 °F (10 to 55 °C) with dew-point control standard
Maximum Power Consumption	4.5 kW at maximum flow and external pressure drop
Dimensions (H x W x D) and Weight	75 in. x 24 in. x 41 in. (1900 mm x 600 mm x 1043 mm) 815.71 lbs. (370 kg) - dry
Noise Level at 3m (10ft)	< 54 dBA
Power Supply Europe, Asia and ROW	400 v 50/60 Hz 3 phase, fused at 20 or 30 A (1 or 2 x pump op.)
Power Supply US – 480v	480v 60 Hz 3 phase, fused at 20 or 30 A (1 or 2 x pump op.)
Power Supply US – 208v	208 v 60 Hz 3 phase, fused at 50 A (1 x pump op.)
Power Supply Japan	200 v 50/60 Hz 3 phase, fused at 50 A (1 x pump op.)
Dual Power Feeds (ATS)	Optional feature
Primary Connection	2 in. hygienic flanges top or bottom
Primary Filtration	Optional – 500µ with bypass to enable on line cleaning
Primary Circuit Volume	With filtration – 8.5 gal. (32 l)
Secondary Connection	2½" hygienic flanges top or bottom or optional manifolds
Secondary Filtration	Optional - 50µ dual redundant to enable on line cleaning
Secondary Circuit Volume	With filtration – 11.9 gal. (45 l)
Flow Meters	Primary and secondary
Pressure Sensors Primary Circuit	Primary inlet pressure and filter DP
Pressure Sensors Secondary Circuit	Inlet pressure (redundant), supply pressure and filter DP
Temperature Sensors	Primary inlet, secondary inlet and supply (triple redundant)
Other Sensors	Ambient/Room RH and temperature (redundancy option)
Fill pump and Air Vents	Automatic fill pump and automatic air vents
Expansion vessels	Redundant 2.1 gal. (8.0 l) expansion vessels
Communication	RS485 RTU Modbus, TCP/IP SNMP, CLI, Webserver and others
Agency Approvals and Certification	CE, cULus, RoHS

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SL-07622 (R06/21)