motivair®
COOLING SOLUTIONS

CDU coolant distribution unit

Floor Mount & In-Rack Models

COMPREHENSIVE COOLING FOR YOUR DIGITAL WORLD

From Hyperscale to Exascale

A Coolant Distribution Unit (CDU) is designed to control and separate colder facility water supplies from the IT cooling infrastructure. It allows you to deploy higher density, load diverse IT equipment in a smaller footprint & improve efficiency.

This action of "decoupling" allows the CDU to accurately monitor and control the flow and temperature of clean, cool fluid to all types of IT cooling systems, including Active and Passive Rear Door Heat Exchangers or Liquid-Cooled Computer Systems (Direct-to-Chip or On-Chip).

The CDU maintains a secondary loop water temperature above the dew point in the data center to eliminate the possibility of condensation.

MODELS
MCDU-4U 105 kW
MCDU15 310 kW
MCDU 25 625kW
MCDU 40 1250kW

APPLICATION
ChilledDoor®
Rack Cooling System &
Liquid-Cooled Computer Systems

Custom OEM Solutions
Motivair offers flexible CDU designs for unique liquid cooling applications, including custom OEM solutions.

KEY REASONS TO USE A MOTIVAIR® CDU

- Isolates a clean water supply for IT cooling system
- Maintains water temperature above data center dew point eliminating the possibility of condensation
- Automatically adjusts water flow and temperature for scale-on-demand IT loads
- Offers inherent redundancies for maximized uptime
- Ideal for W1 – W5 cooling systems
- Made in the USA

DECOUPLE

Isolate computer cooling loop from facility cooling water

CONTROL

Exact temperature and flow to IT cooling system above room dew point

MONITOR

Record, trend and report updates on cooling system profiles

REDUNDANCY

Redundant pumps ensure reliable cooling to server equipment

SCALE

Adapt cooling system in real time with server load demand

HOW IT WORKS

The Motivair® Coolant Distribution Unit (CDU) creates an isolated water loop and pumps this through the cooling system to operate at maximum efficiency. It automatically adjusts the coolant flow and temperature to provide 100% sensible cooling up to 1.25MW, depending on the model.

Each CDU uses a stainless-steel heat exchanger, which transfers the heat removed from the IT equipment in the secondary loop to the primary (building) chilled water supply. The primary chilled water supply can be a chiller, cooling tower, or natural resource. The redundant dual pumps deliver a secondary coolant loop with water supply temperatures ranging from 55F - 113F+ (W1- W5), which removes up to 1.25MW of IT equipment waste heat. Each CDU precisely controls required coolant flow based on IT cooling system needs. A complete range of CDUs with varying capacities allow for flexibility in design to best fit your application.

A modulating 2-way valve constantly adjusts the CDU cooling capacity based on IT demand. Operation is completely automatic with adjustable water temperature set points, dew point control and alarm thresholds that are easily accessible through the PLC control system mounted on the front of the CDU. A powerful PLC controls the entire CDU operation and provides remote control and communication via BACnet MS/TP, BACnet IP, Modbus, or LON.

Exascale Approved

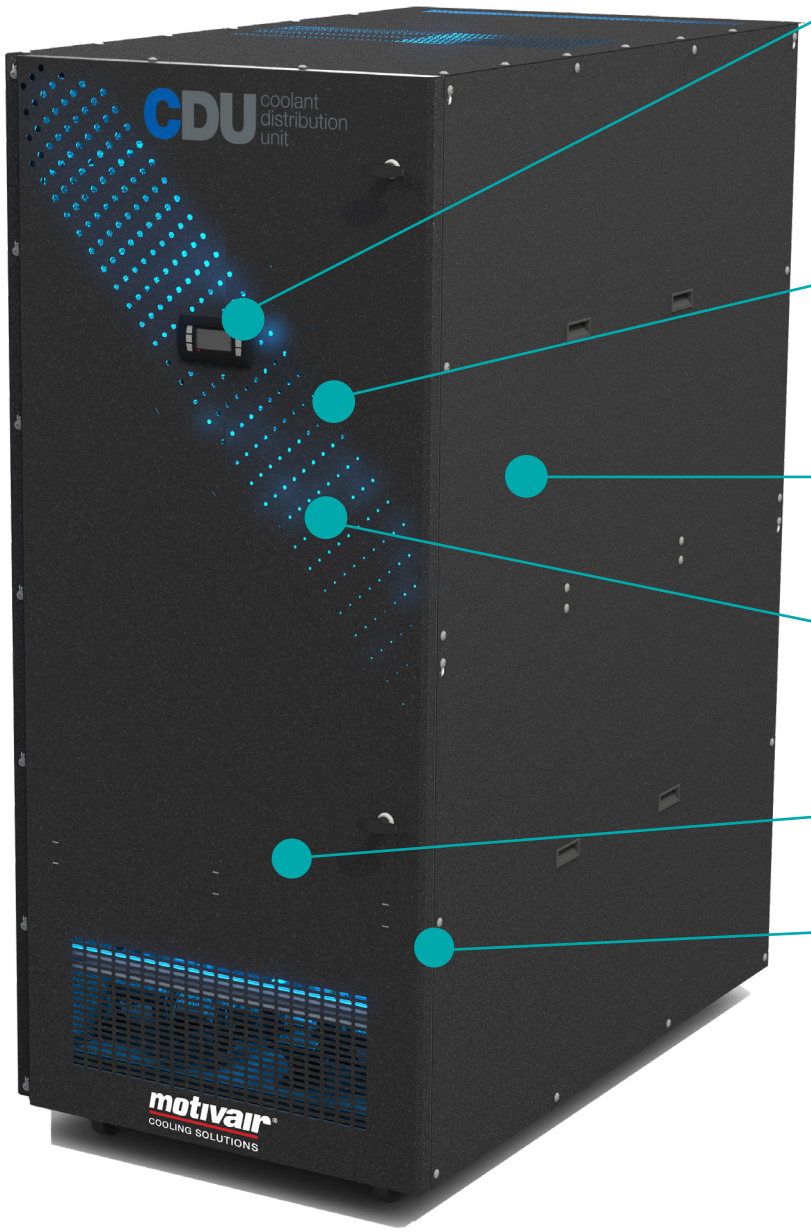
The world's next generation of supercomputers have been designed with intense processing power that requires direct liquid cooling (DLC).

Exascale class systems need CDU's that are capable of managing dense thermal loads and communicating directly with the computer itself to ensure maximum performance and reliability.

As a trusted partner to the leading chip and computer manufacturers, Motivair has earned the distinct honor of cooling the world's first exascale computer systems.

Features

Floor-Mounted CDUs



PLC CONTROL SYSTEM
Simple navigation, adjustable set points and alarms provide individual setup, control and monitoring

LED STATUS INDICATOR
Provides the data center team with visual CDU status

REDUNDANT VARIABLE SPEED DRIVES

STAINLESS STEEL HEAT EXCHANGER

REDUNDANT PUMPS

3X FLOOR-MOUNTED MODELS
with cooling capacity up to 1.25MW, depending on model

In-Rack CDUs

REDUNDANT CIRCULATING PUMPS

4U IN-RACK DESIGN
Placement in top or bottom of any standard 19" rack enclosure

COOLING CAPACITY OF 80KW
with ChilledDoor® or 105kW with other IT computer cooling systems

Motivair® Coolant Distribution Unit

TECHNICAL SPECIFICATIONS:

MODELS:	MCDU 4U - H	MCDU 4U - L	MCDU - 15	MCDU - 25	MCDU - 40
Rated Cooling Capacities (kW)*:					
Primary (Building) Supply @ 90F Secondary Supply/Return @ 113F/149F	105	72	310	625	1250
Primary (Building) Supply @ 45F Secondary Supply/Return @ 65F/80F	45 / 80**	30/49**	130	260	525
Coolant Fluids Available (Type)***:	Water, Glycol	Water, Glycol	Water, Glycol	Water, Glycol	Water, Glycol
Nominal [Primary | Secondary] Flowrate (GPM | GPM): 30 | 30		30 | 14	90 | 60	185 | 120	420 | 240
Nominal [Primary | Secondary] Pressure Loss through CDU (Psi | Psi):	6 | 7	6 | 5	16 | 16	14 | 11	30 | 14
Primary & Secondary Connections (Inch)****:	1″	1″	1-1/2″	2-1/2″	4″
Primary & Secondary Connection Locations (Type):	Rear	Rear	Top or Bottom	Top or Bottom	Top or Bottom
Nominal Available Pump Head Pressure (Psi):	25	25	25	32	38
Nominal Pump Motor Power (HP | kW):	0.8 | 0.6	0.4 | 0.3	3.0 | 2.2	7.5 | 5.6	15.0 | 11.2
Number of Pumps (Qty.):	2	2	2	2	2
Integrated Variable Speed Drives (VFD's):	√	√	√	√	√
Number of Power Feeds (Qty.):	2	2	2	2	2
Typical Range of Motivair ChilledDoors® Supported (Qty.):1	1	1	4 - 12	8 - 24	16 - 48
MCDU Dimensions (Inch):					
Height :	7″	7″	73-5/8″	73-5/8″	80-1/4″
Length:	37″	37″	42-1/2″	42-1/2″	60-1/8″
Width:	17-3/4″	17-3/4″	31-1/2″	31-1/2″	35-1/4″
Electrical Power Supply Options Available (V/Ph/Hz):					
230V/1PH/60HZ	√	√			
230V, 460V, 575V/3PH/60HZ			√	√	√
400V/3PH/50HZ			√	√	√
Redundant A/B Power Connections	√	√	√	√	√
Full Load Amps (FLA) (460V/3PH/60HZ):	2.4*****	1.8*****	4.8	11	21
PLC Controls Available:	√	√	√	√	√
Communication Platforms Available (Type):	BACnet, LON, Modbus	BACnet, LON, Modbus	BACnet, LON, Modbus	BACnet, LON, Modbus	BACnet, LON, Modbus
Modbus					
Sound Data Rated at 10 ft [3m] (dBa):	<55 dBA	<55 dBA	<55 dBA	<55 dBA	<55 dBA
Safety Approvals	UL/CSA/CE	UL/CSA/CE	UL/CSA/CE	UL/CSA/CE	UL/CSA/CE

*Capacites are rated with 100% Water - Capacities will vary depending on application
** Primary (Building) Supply @ 45F; Secondary Supply/Return @ 60F/84F
***Consult Factory for Custom Fluids
****Consult Factory for optional connection types
*****Full Load Amps (FLA) at 230V/1PH/50-60HZ

motivair®
COOLING SOLUTIONS

CHILLEDDOOR® RACK COOLING SYSTEM

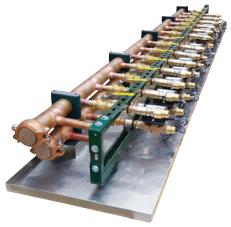
Advanced server rack cooling system fits any standard or OEM computer rack. Removes up to 75 kW of server heat per door.

PTS

Motivair offers a wide range of closed loop cooling systems desinged to operate at W03and W-4 water temperatures fo use with next gen liquid cooled computer systems.

SERVICE & MAINTENANCE PROGRAM

Motivair® provides customer-focused service and support for your mission critical equipment. We offer site surveys, installation services, Level III Commissioning support, service agreements, and extended warranties on parts.



MANIFOLD SYSTEMS

A manifold provides a common connection point between the ChilledDoors® and the supply and return cooling infrastructure system or CDU. Each manifold is preconfigured for each door to include a check valve, individual 2-way valve and quick connect fittings for use with Motivair® hoses. Available options for semi-custom designs include 6, 12 and 16 port assemblies.

MOTIVAIR FREE-COOLING CHILLERS

The Motivair® Free-Cooling chillers were created to serve year-round mission critical cooling loads for data centers. Generations of Free Cooling chiller software design and implementation allow for optimal water side economizing hours, rapid restart after power failure, and tight temperature control during extreme year-round
weather patterns.

85 Woodridge Drive
Amherst, NY 14228
Tel: 716-691-9222