



COOLING DISTRIBUTION UNIT CDU-1500

LEAK-FREE HIGH-CAPACITY LIQUID COOLING

Chillydyne's high-capacity CDU cools up to a 1,500 kW load in high-density data centers with efficient, leak-free liquid cooling. Its negative pressure technology eliminates downtime from leaks by using vacuum circulation instead of pumps. With the adaptive pressure control, the system switches between positive and negative pressure modes on demand via software command, adapting to varying cooling and operational requirements. Intelligent controls fully automate coolant management, while seamless software integration enables remote monitoring and control. Designed for next-generation AI and HPC workloads, the CDU-1500 offers reliable, scalable, energy-efficient, and sustainable cooling for data centers.



FUTURE-PROOF YOUR DATA CENTERS

THE WORLD'S FIRST LEAK-PROOF LIQUID COOLING SOLUTION AT MEGAWATT SCALE FOR HPC AND AI WORKLOADS

RELIABILITY AND RESILIENCY

N+1 redundant configurations and zero downtime upgrades ensure continuous operation. Negative pressure technology eliminates coolant leak risks, while automated coolant quality control maintains optimal system performance.

SUPERIOR THERMAL PERFORMANCE

The CDU-1500 delivers industry-leading cooling efficiency at a lower cost per kW. With capacity up to 1,500 kW of heat removal, it's ideal for high-density AI data centers. Our compact design maximizes cooling capacity while minimizing space requirements.

SUSTAINABILITY IMPACT

Achieve up to 40% energy savings compared to traditional air cooling methods. Direct-to-chip liquid cooling significantly reduces CO2 emissions versus alternative cooling solutions, aligning performance with sustainability goals.

Chillydyne's innovative negative pressure technology creates a vacuum to circulate water by pulling it through the cooling system. This approach removes the need for costly, heavy-duty plumbing to the racks, ensures easy setup and upkeep, and eliminates leaks in a system with no single point of failure.

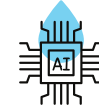
KEY FEATURES

- Continues to operate efficiently even with up to 50 liters per minute of air ingress from a compromised cooling loop, without significant reduction in cooling performance
- Eliminates leaks by circulating coolant under negative pressure
- Delivers efficient heat transfer at low approach for thermal loads up to 1,500 kW and lowers operational costs
- Automatically monitors and optimizes coolant quality and temperature
- Easy-to-use interface with detailed logging and analytics
- Real-time performance tracking via touchscreen and network
- N+1 redundant configurations available to maximize uptime
- DCIM and BMS integrations support SNMP, Modbus, Syslog, Web API, and more
- Switches between positive and negative pressure modes on demand via software command, adapting to varying cooling and operational requirements.



ZERO-LEAK COOLING

Negative pressure technology



DIRECT-TO-CHIP

1,500 kW cooling capacity



ENERGY EFFICIENT

Up to 40% savings



AI & ML READY

2,000+ watt CPUs/GPUs



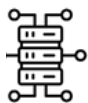
EASY TO INSTALL

Easy to maintain

COOLING SOLUTIONS ACROSS INDUSTRIES

YOUR TRUSTED EXPERTS IN LIQUID COOLING TECHNOLOGY

With over a decade of experience, Chilldyne continues to pioneer data center cooling technology. From our first system deployment in 2012 to our first at-scale implementation in 2015, our advanced liquid cooling solutions are trusted by leading institutions and are featured in the list of TOP500 supercomputers. We deliver reliable, efficient, and scalable cooling solutions for a wide range of industries.



HPC



AI & ML



DATA CENTERS



TELECOM



FINANCE & BANKING



CLOUD PROVIDERS



HYPER-SCALERS



GOVT (DOD & DOE)



ACADEMIC & RESEARCH



The supercomputer at Sandia National Laboratories with the under-floor automatic switchover valves that enable the system's N+1 smart redundancy to maximize uptime.

VIDEO DEMO:
WATCH OUR LEAK-PROOF
TECHNOLOGY IN ACTION



U.S. DEPARTMENT OF
ENERGY



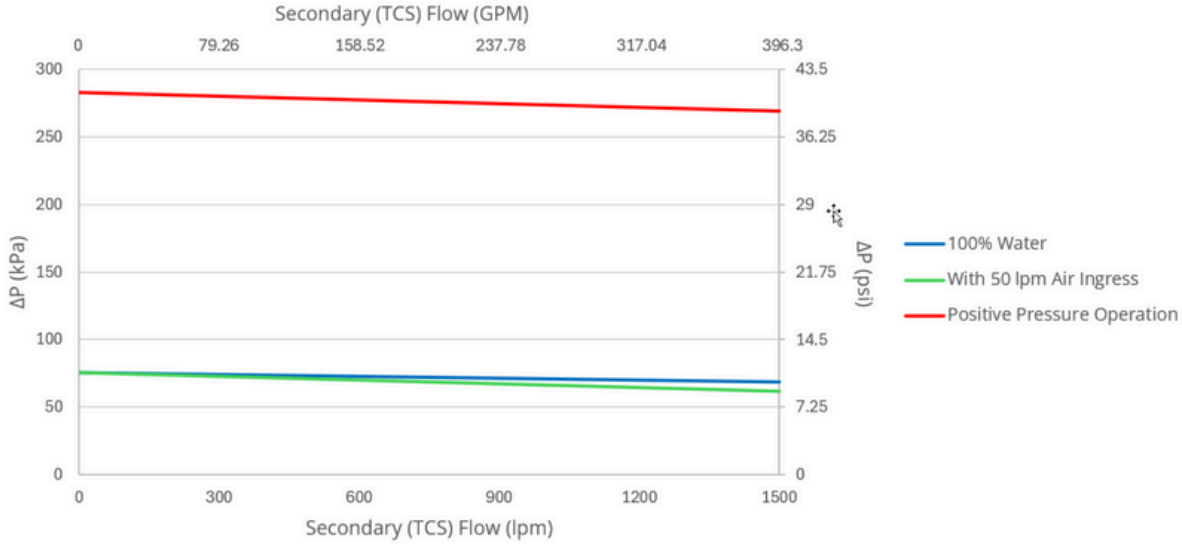
CDU-1500 TECHNICAL SPECIFICATIONS



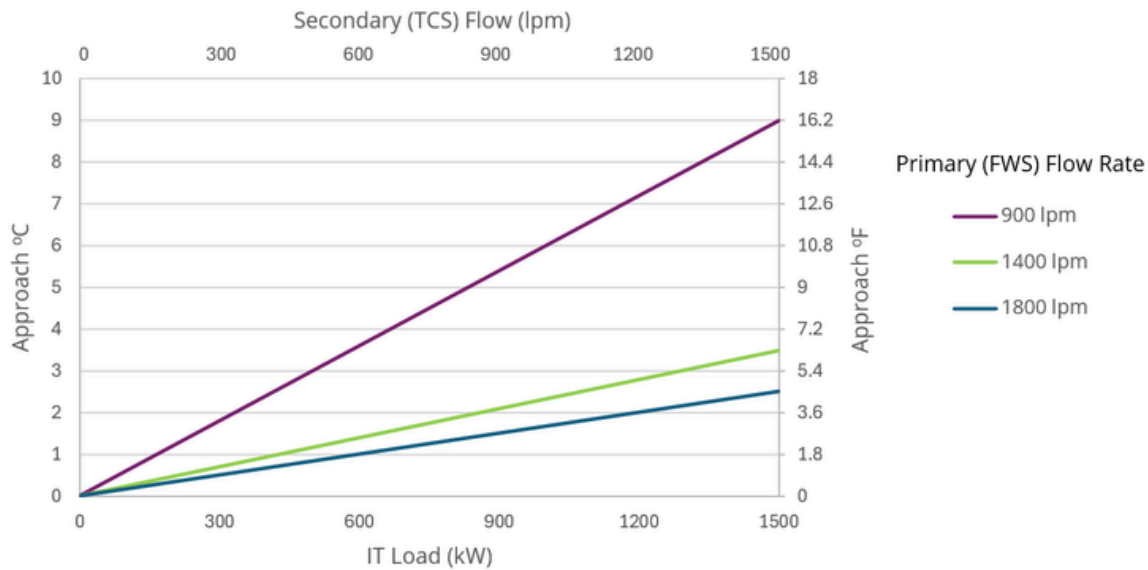
Cooling Capacity	Rated Cooling Capacity* [kW] Primary Supply @ 45°C (113°F) Secondary Supply @ 48°C (122°F) Secondary Return @ 62°C (147°F)	1,500 kW (1,500 lpm @ 15°C ΔT)
	Approach ΔT 1,500 kW [°C]	3°C (1500 lpm FWS flow)
	Coolant Fluids Available	Water, Glycol Mix
	Response Time Load 0-100%-0	Temperature rise max 0.5°C/second for 2 seconds, 1.5°C max overshoot/undershoot
	Transient Specification	Settle to within 1°C of setpoint within 5 seconds
Nominal Flow Rates	Primary (FWS) Loop	475 GPM (1,800 lpm) or 25% more than TCS loop max 10 psi ΔP
	Secondary (TCS) Loop	400 GPM (1,500 lpm) @ 10 psi ΔP
Pump	Nominal Pump ΔP (Negative Pressure Operation)	10 psi (4 in Hg vacuum supply, 25 in Hg return at sea level @ 1,500 lpm)
	Nominal Pump ΔP (Positive Pressure Operation)	49 psi (39 psi supply, 25 in Hg return @ 1,500 lpm)
	Air Leak Tolerance	50 lpm with less than 5% reduction in flow
	Number of Pumps (Standard/Optional)	1
	Integrated Variable Speed Drives (VFD)	Yes
Connections	Primary/Secondary Connections**	4-inch 150# flanges on supply & return / 2 sets of 2 x 4-inch FNPT on supply & return
	Connection Locations	Top or Bottom
Power	Number of Power Feeds	1 (2 with ATS)
	Electrical Power Supply Options Available (V/Ph/Hz)	208-240V/3Ph/60Hz; 415-480V/3Ph/60Hz; 380-400V/3Ph/50Hz
	Redundant A/B Power Connections	Yes
	Full Load Amps (FLA) (460V/3Ph/60Hz)	26A
Compliance and Warranty	Agency Approvals & Certification	UL, CE, RoHS
	Standard Warranty	15,000 hours or 2 years
Physical and Communication Details	Dimensions [L x W x H] [inches]	60" x 48" x 74"
	Weight, Dry [lbs]	2,800
	Noise Level at 3 ft. (1 m) [dBa]	< 72
	Leak Detection (WDS Single/Redundant)	Standard / Optional
	Dew Point Monitoring	Yes
	Secondary Strainer	Yes
	Primary Flow Meter	Yes
Communication	Touchscreen GUI, local web-based GUI and local web API, Redfish, SSH and serial command lines, SNMP and Modbus TCP/IP, Syslog UDP, FTP file transfer. 1x Fast Ethernet (RJ45/8p8c)	

PERFORMANCE

CDU-1500 Flow vs ΔP



CDU-1500 Approach vs Load (@1.0 kW/lpm)



Chillydyne delivers reliable, leak-proof direct-to-chip (DTC) liquid cooling solutions. Our patented, fail-safe systems use advanced negative pressure technology and smart redundancy to prevent leaks and maximize uptime. Easy to install and maintain, Chillydyne delivers reliable, efficient, and sustainable liquid cooling systems that offer superior heat removal performance, significantly reducing carbon emissions, while minimizing environmental impact.

Chillydyne, Inc, 5900 Sea Lion Place, Carlsbad, CA 92010, USA

© 2024 Chillydyne Inc. All rights reserved. Chillydyne™ and the Chillydyne logo are trademarks or registered trademarks of Chillydyne Inc. All other names and logos referred to are trade names, trademarks or registered trademarks of their respective owners. While every precaution has been taken to ensure accuracy and completeness here, Chillydyne Inc. assumes no responsibility, and disclaims all liability, for damages resulting from use of this information or for any errors or omissions. Specifications, rebates and other promotional offers are subject to change at Chillydyne's sole discretion upon notice.