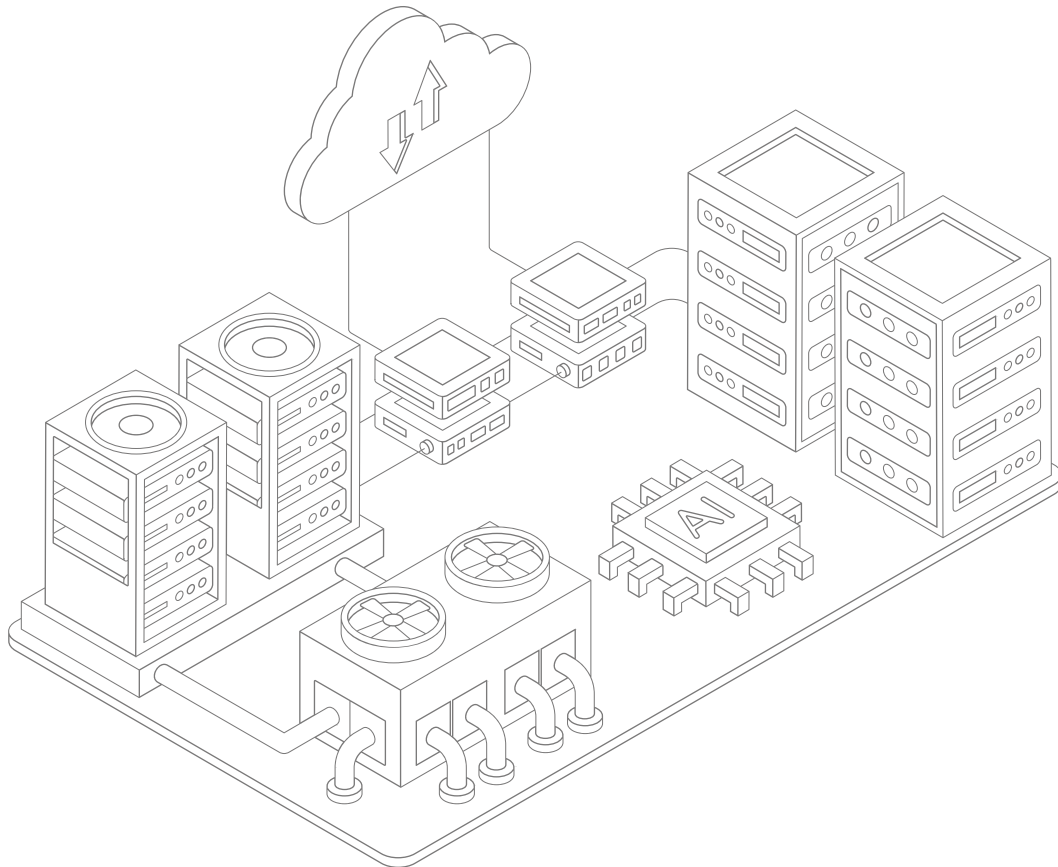


Thermal Engineering for High-Density Compute

Liquid cooling technologies designed to maximize compute performance, energy efficiency, and infrastructure scalability.

KühlTherm **Building the Future of Thermal Infrastructure**

Accelerated Computing with high power density chipsets pushing rack loads into megawatts are reshaping modern data centers. As compute demands continue to evolve, thermal management has become fundamental to performance, scalability, and reliability beyond just reducing the operational costs.



About KühlTherm

Recognizing this shift, KühlTherm was established to develop innovative liquid cooling technologies for next-generation computing.

Founded by engineers with expertise in thermal engineering, automotive product development, precision manufacturing, and large-scale production, KühlTherm combines proven engineering principles with a modular design philosophy to deliver scalable, Made-in-India solutions built to global performance standards.

KühlTherm designs and manufactures complete liquid cooling ecosystems that improve thermal efficiency, reduce energy consumption, and enable the future of AI-driven computing.

The future of thermal infrastructure is built layer by layer. Discover the technologies behind the KühlTherm ecosystem.

Engineering Principles, Etched Into Every Solution.

Every KühlTherm innovation is guided by a shared commitment to precision, collaboration, and long-term sustainability. These principles shape the way we design, deploy, and scale thermal infrastructure for modern computing.

Precision Engineering

Designed to exact tolerances for dependable performance across real-world operating conditions.

Partnership First

Collaborating with customers from system design and deployment through long-term operational support.

Designed for a Sustainable Future

Improving infrastructure efficiency while reducing energy consumption and extending hardware life.

From Chip to Chiller. One Intelligent Cooling Architecture.

Chip → Rack → Coolant Distribution → Chiller → Intelligent Monitoring

KühlTherm delivers an integrated thermal management ecosystem that manages heat seamlessly across every layer of modern computing infrastructure.

From patented **Direct Chip Liquid Cooling (DCLC)** and **Patented Modular Rear Door Heat Exchangers (RDHx)** to **intelligent Coolant Distribution Units (CDU)**, **manifolds**, **quick disconnects**, and **NexusFlow OS**, every component is engineered to work as part of a unified architecture; maximizing efficiency, simplifying deployment, and enabling scalable AI-ready infrastructure.

Technology That Scales with Infrastructure

Modern data centers demand flexibility as much as performance. KühlTherm's modular architecture is designed to evolve alongside changing compute environments, enabling organizations to deploy today and scale tomorrow without compromising efficiency, reliability, or operational continuity.

Designed for Scalable Performance Through:

- Modular engineering architecture
- Patented liquid cooling innovations
- AI-powered thermal intelligence
- Predictive monitoring and analytics
- Flexible deployment across new and existing facilities
- Open architecture for simplified integration
- Lower Total Cost of Ownership (TCO)
- Future-ready scalability for AI and HPC environments

Every infrastructure environment is unique, but the objective remains the same: delivering more compute with greater efficiency.

Discover the engineering innovations that power every layer of the KühlTherm liquid cooling ecosystem.



Rear Door Heat Exchanger (RDHx)

High-Density Cooling, Minimal Change

The KühlTherm RDHx captures server exhaust heat at the rear of the rack, before it reaches the aisle. Built on a patented modular block architecture, it scales from 20 kW to 100 kW per door.

A closed loop coolant system isolates IT equipment from facility water and its contaminants, while variable speed fans adjust airflow against real time exhaust temperature. This unit integrates into existing infrastructure rather than requiring a new one. N+1 redundancy and toolless serviceability keep it operational through component failure and routine maintenance alike.



Key Features



Patented Modular Architecture

The 20 kW module is the building block, not a fixed-capacity unit. Modules stack to 100 kW per door and are added in place as rack power draw increases, with no base unit swap and no forklift upgrade.



In-built Redundancy

Multiple modules within the rack provide built-in redundancy. A single fan failure does not compromise rack cooling, and the unit continues operating while the failed component is swapped, with zero interruption to the coolant loop.



Toolless Field Serviceability

Hot-swappable fan-radiator modules are accessible from the rear. Field teams service the unit without opening the coolant loop or scheduling rack downtime.



Reduced OpEx and High ROI

Scale cooling as needed, reducing infrastructure investment while improving energy efficiency for high-density compute.



Multi Fluid Loop Compatibility

Validated for both PG25 glycol and deionized water with corrosion inhibitor packages, so the unit integrates into whatever facility loop chemistry is already standing, with no fluid conversion required.

RDHx

Technical Specifications

Parameter	Unit	KT40	KT75	KT80	KT90	KT105
Cooling Capacity	kW	40	60	80	90	105
Cooling Method	--	Liquid to Air	Liquid to Air	Liquid to Air	Liquid to Air	Liquid to Air
Size	U	42-52	42-52	42-52	52-58	58
Width	mm	600 / 800	600 / 800	800	800	800 / 1000
Depth	mm	225-255				
ATD	°C	20-22	20-22	22-25	22-25	22-25
TCS (Secondary Side)	LPM	60	90	110	135	160
Air Supply (Primary)	CFM	4200	6000	8000	8950	10550
Coolant	-	PG25 / Purified Water				
Working Pressure	Bar	Up to 7				
Pressure Drop	kPa	<500				
Connection	Inch	1	1	1 ¼	1 ¼	1 ½
Power Supply	V	230 VAC / 50 Hz or 120 VAC / 60 Hz				
Power Consumption	W	<800	<900	<1500	<1500	<1700
Dual Power Source	-	Yes	Yes	Yes	Yes	Yes
Compliance	-	CE				

(Note: Delta T varies by capacity.)

Smart Controls



Control and Monitoring

Dual core SoC controller with 7 inch industrial touch HMI, providing local telemetry and PIN gated configuration at the rack



Protocol Support

Modbus RTU/TCP, SNMP v3, and Redfish available as an optional protocol



Real Time Monitoring

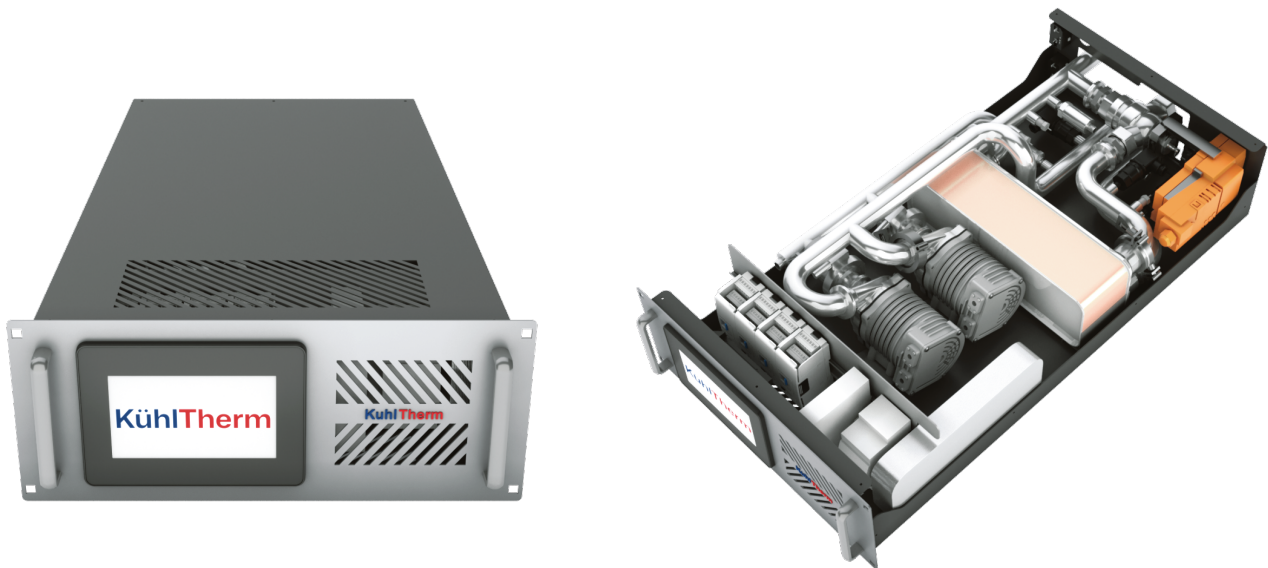
Air inlet and outlet temperature, facility water pressure, fan speed, current, voltage, relative humidity, and facility water temperature

Coolant Distribution Unit (CDU)

The Loop Never Touches Your Equipment

The KühlTherm CDU sits between facility water and liquid cooled infrastructure, delivering precise coolant flow, temperature, and pressure control through fully isolated loops. Both in-rack and in-row CDUs are engineered in modular blocks.

It supports 125 kW rack density with future capacity growth without a redesign of the loop. N+N redundancy, high-efficiency pumps, and zero-leak UQD connectors keep the unit in continuous operation while reducing power consumption.



Key Features



25% More Energy Efficiency



Full Loop Isolation



N+N BLDC Pump Redundancy



Zero Leak UQD Connections



Corrosion Resistant Fluid Path



Direct BMS and DCIM Integration

Technical Specifications

Parameter	Unit	KTCD00125
Cooling Capacity	kW	125
Cooling Method		Liquid to Liquid
Size	U	4
ATD	°C	4 to 6
Secondary Coolant Flow (TCS)	LPM	125
Primary Facility Water Flow (FWS)	LPM	200
Secondary Coolant		PG25
Primary Coolant		Facility Water
Working Pressure	Bar	Up to 7
Pressure Drop	kPa	<100
Connection	V	UQD connector
Power Supply	W	230 VAC / 50 Hz or 120 VAC / 60 Hz
Power Consumption		<1000
Pump Configuration		N+N BLDC
Warranty	Years	Up to 7

(Note: Delta T varies by capacity.)

Smart Controls



Control and Monitoring

Controller with 5 inch or 7 inch touch screen HMI



Protocol Support

Modbus RTU/TCP, SNMP, and Redfish available as an optional protocol



Real Time Monitoring

TCS pressure, FWS pressure, TCS inlet and outlet temperature, FWS inlet and outlet temperature, current, voltage, relative humidity (optional)

Reliability and Safety

Leak Detection

Integrated sensors monitor the hydraulic path continuously, triggering alerts through the HMI and BMS before an anomaly becomes a rack level incident

Voltage Protection

Built in protection against power fluctuation and surge events across the unit

Corrosion Protection

Corrosion proof coating

Filtration

Inbuilt filtration protects the coolant loop from particulate contamination over time

Auto Shutoff and Purge Valve

Automated isolation triggered on anomalous pressure or flow signature

Compliance

ASHRAE compliant cooling, IEC and CE compliant, RoHS compliant components

Warranty and Service

Coverage extendable up to 7 years, backed by a mission critical service model

Operation

Designed and validated for continuous 24x7 operation in production environments

Deployment Support

CFD Analysis

Pre deployment airflow and thermal modeling run against your specific rack layout and heat load profile

Compatibility Validation

Mechanical and hydraulic interface checks against any standard or OCP compliant cabinet specifications

Water Chemistry Advisory

Facility loop assessment covering pH, corrosion inhibitor, chloride, and hardness thresholds

Structural Sign Off

Post installation engineering review of door mounting, weight distribution, and opening clearance

Lifecycle Support

24x7 mission critical service model, with warranty coverage extendable up to 7 years

Industries



AI Training and Inference Facilities



HPC and Research Computing



Colocation and Multi Tenant Data Centres



Hyperscale & Enterprise Data Centres



Edge & Micro Data Centres



High Frequency Trading or Custom Cooling Needs

Nexus Flow OS

Intelligence Across the Cooling Infrastructure

NexusFlow OS is KühlTherm's intelligent cooling platform, providing centralized monitoring, predictive analytics, and real-time optimization across the entire liquid cooling ecosystem.

Designed to integrate hardware, infrastructure, and operational data, it delivers end-to-end power visibility from the grid to the rack and cooling visibility from the chip to the chiller, while enabling efficient thermal management across AI and high-density computing environments.



Key Features



**Grid-to-Rack
Power Visibility**



**Chip-to-Chiller
Cooling Visibility**



**Dynamic Variable-Load
Adaptation**



**Real time Cost of
Cooling Analytics**



**Vendor-Agnostic
Integration**



**Unified Infrastructure
Management**

Designed to Power the Next Generation of Compute

As rising compute density creates extreme localized hotspots, thermal management must evolve; delivering targeted, precise cooling at the chip that seamlessly scales to the entire data center.

KühlTherm combines patented engineering, modular architecture, intelligent software, and manufacturing expertise to deliver a complete liquid cooling ecosystem designed for next-generation data centres.

Why KühlTherm?



Whether you're designing a new AI-ready data centre, upgrading existing infrastructure, or integrating liquid cooling into next-generation server platforms, KühlTherm delivers the engineering expertise, scalable technologies, and intelligent cooling ecosystem required.

Reliable today. Ready for what's next.

[illegible]

Built Around Innovation

KühlTherm

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