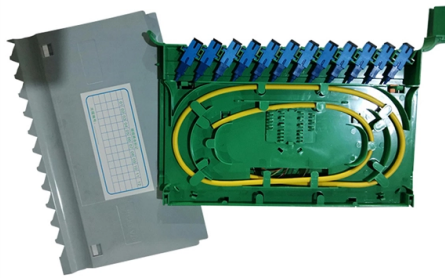


Liquid-cooled distribution box



Article Overview

A liquid-cooled distribution box, often called a Coolant Distribution Unit (CDU) or manifold, manages and delivers coolant to high-density IT racks, ensuring efficient heat removal and precise temperature control.

Function and Purpose

A liquid-cooled distribution box is designed to distribute coolant from a central source to servers or racks, enabling direct-to-chip or rear-door cooling in high-density data centers. It regulates flow, pressure, and temperature to ensure even heat dissipation across all servers, preventing hotspots and improving overall energy efficiency and performance . These units are essential for AI workloads, GPU servers, and HPC environments where traditional air cooling is insufficient .

Design and Components

- **Manifolds and Piping:** Typically made from stainless steel (e.g., 304 grade) with pipe diameters ranging from 25mm to 400mm, manifolds distribute coolant evenly to multiple racks .
- **Valves:** Isolation and flow-control valves, either electronic or autoflow, allow precise regulation of coolant delivery .
- **Pumps and Redundancy:** Many CDUs include redundant pumps to ensure continuous operation and prevent downtime .
- **Filtration and Monitoring:** Built-in filtration and sensors monitor temperature, pressure, and flow, often with remote monitoring via SNMP, Modbus, or HTTP interfaces

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Contact Us

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