

Vertiv™ CoolChip Fluid Network

Modular in-row manifolds for the technology cooling system (TCS)



Benefits

- **Flexible integration**
Easily integrates with existing infrastructure and cooling strategies
- **Reduced complexity**
Optimized configurations for streamlined design, procurement and installation
- **Rapid deployment**
Pre-configured and in-stock options
- **Scalable design**
Easily add or reconfigure components as compute needs evolve

The Vertiv™ CoolChip Fluid Network simplifies and accelerates the deployment of the TCS, also called the secondary fluid network (SFN) in high-performance, liquid-cooled environments. Purpose-built to meet the demanding thermal needs of AI, HPC and GPU-dense compute, it features a modular, flexible design that integrates seamlessly into a wide range of facility layouts, cooling topologies, and evolving capacity requirements.

In-row manifolds built for scale

In-row fluid networks are the circulatory backbone of modern liquid cooling systems. The Vertiv CoolChip Fluid Network in-row manifold distributes coolant efficiently from a centralized coolant distribution unit (CDU) to multiple server racks, eliminating the need for complex, individual rack piping. Its modular and pre-engineered design supports rapid deployment, smooth integration, and simplified expansion—critical for fast-scaling environments like AI clusters, HPC, and enterprise GPU deployments.

Main features

- **Modular, configurable design**
Supports rapid deployment, custom layouts, and allows for scalable expansion.
- **Sanitary 304L stainless steel construction**
With tri-clamp connections for clean, leak-resistant operation.
- **Supports 1-phase direct-to-chip cooling**
Compatible with both Vertiv and third-party CDUs.
- **Standard header sizes**
Available in 4" and 6" with matching 2" and 3" branch ports.
- **Configurable branch connections**
Valve and sensor port options, plus elbows, tees, bypasses, and accessories.
- **Overhead & underfloor deployment options**
Integrated drip pans and modular frames for ease of installation.
- **Factory-built & tested**
Flushed, passivated, pressure-tested, nitrogen-charged assemblies.
- **Installation & commissioning services**
Reduce time on site and enable fast, consistent startup.



Technical specifications

Physical data

Pipe diameter	4" or 6"
Wetted material compatibility	OCP / ASHRAE compliant
Manifold placement	Overhead / underfloor
Rack / CDU connection size	CDU module: 1.5", 2.5", 3", or 4" Rack feed module: 1.5" or 2"
Connection type	Sanitary (tri-clamp)

Fluid circuit data

Fluid type	Water or PG-25 with inhibitors
Nominal flow rate	4": 1300 lpm (343.4 GPM) 6": 3000 lpm (792.5 GPM)
Maximum flow rate	4": 2600 lpm (686.8 GPM) 6": 6000 lpm (1585 GPM)
Max operating pressure	150 psi
Fluid temperature range	17-65°C (62.6-149°F)
Flush / bleed ports	Included for span module and rack feed modules
Fluid pH range	8.0 - 10.5
Valve types	DRV / PICV / Energy valve (rack feed module only)



CDU module

Connects the row-based manifold to multiple coolant distribution units (CDUs).

Span module

Bridges the gap between the CDU connection point and the liquid cooled racks.

Rack feed module

Sits above the liquid cooled racks and offers multiple valve configurations.



Double Regulating Valve (DRV)

A manually adjustable valve used to set and balance flow rates in liquid cooling systems.



Pressure-Independent Control Valve (PICV)

Combines a control valve and automatic balancing function in one unit to maintain consistent flow regardless of pressure fluctuations.



Energy valve

A combination of an electronic control valve, a flow meter, and pressure and temperature sensors used to calculate rack-level energy use.