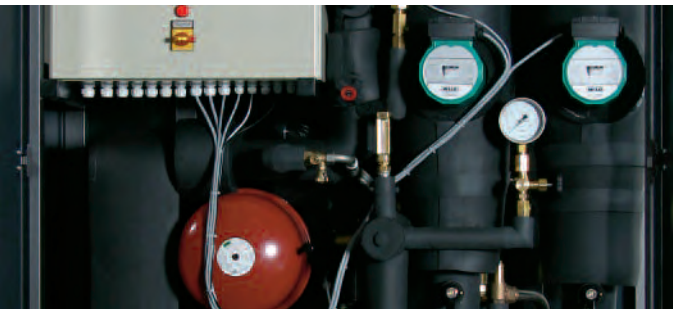


Knürr CoolTrans®

*The reliable link between water circulation systems
in the building and the server rack*



CoolTrans® 50/75/100 – The Link between Building Technology and Data Center

Water supply within a data center poses specific challenges for the installation of cooling water systems. Water cooling is in fact required due to the high discharge of thermal energy by state-of-the-art servers. Water-cooled server racks help to minimize the distance between cooling systems and servers. CoolTherm®, the closed server



rack featuring a water-cooled circulating air system, and CoolAdd®, the watercooled retrofit solution for a wide variety of current server racks produced by different manufacturers, function on the basis of a failure-proof connection with the cold water supply available in any building.

It is not however simply a matter of diverting the existing cold water supply into the data center.

The Knürr CoolTrans® couples the building's main cold water circulation system with the data center's secondary cold water system by means of a water-to-water heat exchanger.

The benefits are...
...the cold water flow temperature is controlled by the dew point temperature within the data center. In this way, any complex isolation of the data center's water circulation system is overcome. At the same time, there will be no build-up of condensation whilst avoiding dehydration and the need to humidify the data center.

...since the secondary circulation system is operated above freezing point, use of glycol is no longer necessary. The coolers may be built to a smaller size, while maintaining the same level of performance, in order to avoid further investment.

...the water quantity within the data center is controlled by the secondary circulation system. Even the working pressure within the installation may be adjusted at a lower range than in the pri-

mary system. The recommended value is approx. 2,5 bar.

... temperature and pressure fluctuations within the primary circulation system are compensated for. The flow temperature can be controlled as a constant and adjustable value.

...the option of monitoring the secondary circulation system, including failure alarm management, protects constant operation and reports technical faults within the installation. Naturally, there is a spare back-up for all moving parts.

In addition, the relatively high flow temperature of 12°C and over allows for a high degree of free cooling in many climate zones, resulting in energy savings. In these cases, the system's capacity factor, i.e. the ratio between cooling performance and power consumption, increases drastically. The Knürr CoolTrans® allows the mixture of cold water produced by free cooling with the main cold water supply.

CoolTrans® is available in the 50 and 100 kW power class. It indispensable for the safe operation of water-cooled racks by controlling

- the precise volume,
- optimum pressure and
- the required temperature.



Primary circuit

Secondary circuit



Capacity	Width	Height	Depth	Pipe connection		Differential pressure: ext.		Elec. connection power 50 Hz	Water volume flow	
				primary	secondary	primary	secondary		primary	secondary
50 kW	450 mm	1010 mm	820 mm	1 1/4"	5 x 1"	1.5 bar	0.7 bar	230 V; 0.8 kW	8.42 m ³ /h	7.16 m ³ /h
75 kW	450 mm	1010 mm	1200 mm	1 1/2"	5 x 1"	1.5 bar	1.1 bar	400 V; 1.8 kW	12.78 m ³ /h	10.74 m ³ /h
100 kW	1640 mm	1890 mm	600 mm	2 x DN 100	2 x DN 100	1.4 bar	1.2 bar	400 V; 1.6 kW	16.79 m ³ /h	14.30 m ³ /h

State: 02/2008

Temperature supply:
Temperature return:
Operating pressure:
Antifreeze agent:

Primary circuit
4 – 8°C
11 – 14°C
16 bar
up to 35%

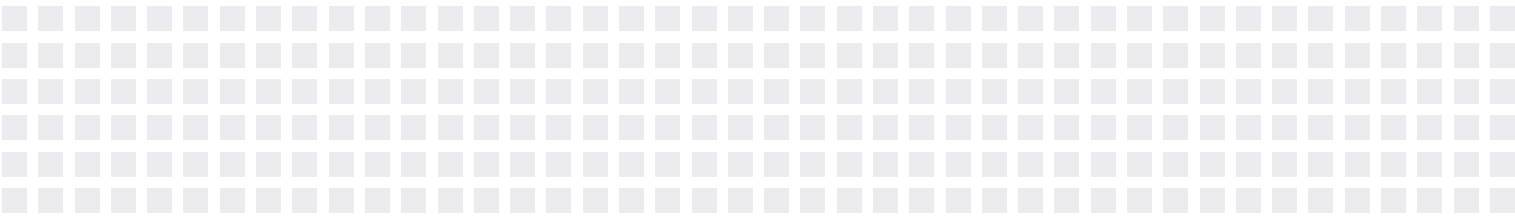
Secondary circuit
12 – 14°C
18 – 20°C
6 bar

conditions of setup site:
capacity 50 respectively 75 kW
(air conditioned room)
capacity 100 kW (any)

Also available:

- Pumps - 600 Hz
- 2 heat exchangers for free cooling
- Redundant electric feed

Note: Further temperatures and diff. pressure possible on request



Features

- Hydraulic separation of the cold water circulation system in the building from the cooling water in the data center
- Use of the best quality components from building technology
- Integration of all thermohydraulic components for regulated liquid cooling (pumps, valves, mixers, heat exchanger, expansion tank)
- Redundant components permit uninterrupted operation, even during servicing
- Connection of individual CoolTherm®s and CoolAdd®s to the CoolTrans®
- Modular design for heat loads in excess of 100 kW

Advantages

- Constant cooling water temperature with adjustable setpoint temperature
- Constant cooling water quantity regardless of the hydraulic arrangements in the building
- Operational reliability through system separation (permits leakage monitoring and prevents corrosion and fouling effects thanks to a defined water quality on the secondary side)
- Operational reliability through redundancy
- Operational reliability through recording and centrally monitoring the operating parameters including warning and alarm signals
- Possibility of controlling emergency operation
- Flanged joint for adding multiple CoolTrans®s
- Dew point dependent cooling water flow temperature increase to prevent condensation water and for piping without insulation

CoolTrans® – universally applicable!



CoolTrans®- up to 50 kW.
Up to five CoolTherm® or CoolAdd® may be connected.



CoolTrans® in compact 19" design.
Ideal for fitting in data centers or IT rooms.



CoolTrans® in modular design.
Adding on allows heat loads far in excess of 100 kW to be safely dissipated.

CoolAdd®

The universal retrofit solution
against overheating in server racks



CoolTherm®

Server cabinet technology with
outstanding benefits



The standards set in the data center by the **CoolTherm®** and **CoolAdd®** from Knürr are already recognised and will continue to increase in significance.

With sophisticated innovative systems based on the highest quality and the advanced thermal management "High Density Cooling Solutions", these Knürr products are breaking new ground, also in terms of economic efficiency.

See for yourself the effective performance and proven security in day-to-day operation in IT rooms and data centers.

... up to 35kW cooling capacity



Blade server optimized!



Knürr.
Competence in data centers.

Emerson Network Power is a consistent global technology leader and recognised expert that helps to secure business-critical processes, and by doing so contributes to a “business-critical continuity”.

A series of the most diverse applications, including the tried, tested and proven Knürr rack system solutions and the thermal management connected with them, ensure the required network stability with the highest technological adaptability at the same time.

Knürr system solutions in the world of information and network technology are part of an adaptive Emerson Network Power architecture, which flexibly adjusts to all changes concerning security/safety, high-density and all associated capacities. Companies profit in a sustainable and long-term way from the high IT availability, operative flexibility and impressive reduction in investment and operating costs.

Knürr AG is recognised around the world as one of the leading developers, manufacturers and distributors of rack and enclosure platforms in the indoor and outdoor area, including all relevant active/passive components of 19” structures and the technologies connected with them.

Knürr is certified in accordance with EN ISO 9001 and the EN ISO 14001 standard. Knürr’s quality management continuously guarantees the highest level of quality in all areas of the company.

Emerson Network Power

The global leader in enabling business-critical continuity

- AC Power Systems
- Embedded Power
- Power Switching & Controls
- Site Monitoring
- Connectivity
- Integrated Cabinet Solutions
- Precision Cooling
- Surge & Signal Protection
- DC Power Systems
- Outside Plant
- Services
- Rack & Enclosure Systems

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