HIGH DENSITY COOLING SOLUTIONS

by knürr

www.knuerr.com

CoolTrans®

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

knürr
environments for electronics

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 water-cooled 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 primary 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.

DataCenter InfraStructure®

DATACENTER INFRASTRUCTURE

by knürr

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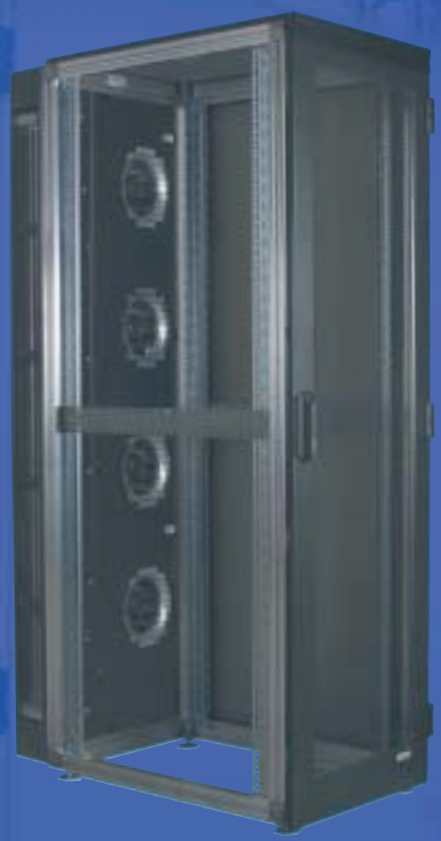
CoolAdd®

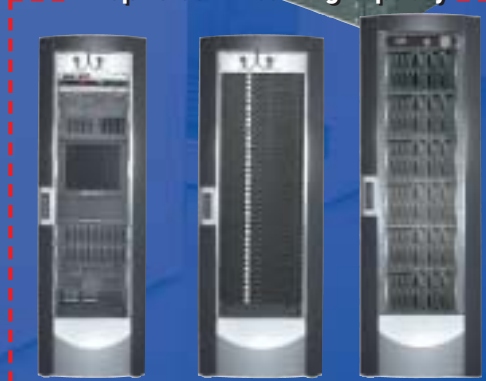
The universal retrofit solution against overheating in server racks



CoolTherm®

Server cabinet technology with outstanding benefits

... up to 35kW cooling capacity

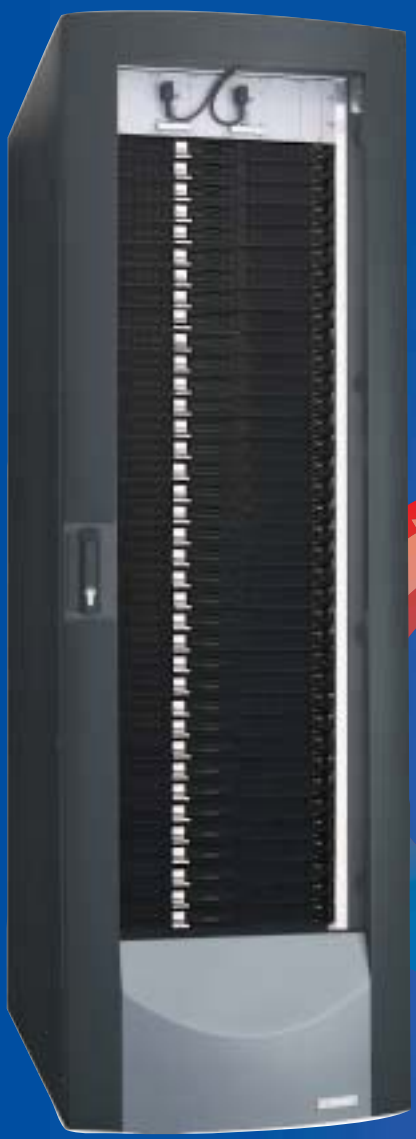


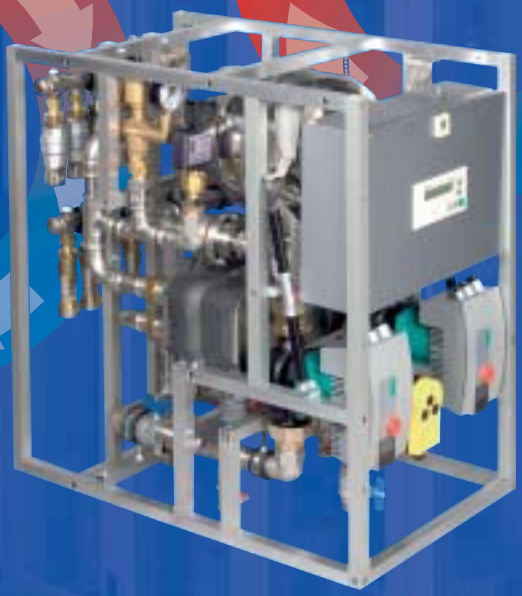
Blade server optimized!

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.

Knürr.
Competence in data centers.





Primary cooling circuit

Secondary cooling circuit

Capacity	Width	Hight	Depth	Pipe connection primary	Pipe connection secondary	External diff. pressure primary	External diff. pressure secondary	Electrical power supply 400 V, 50 Hz	flow rate chilled water
50 kW	450 mm	800 mm	740 mm	1¼"	5 x 1"	1,2 bar	0,7 bar	0,8 kW	7,2 m³/h
75 kW	450 mm	990 mm	950 mm	1¼"	5 x 1"	1,4 bar	1,2 bar	4,0 kW	10,8 m³/h
100 kW	1640 mm	1890 mm	600 mm	DN 125	2 x DN 125	0,8 bar	1,0 bar	1,6 kW	14,4 m³/h

	Primary circuit	**Secondary circuit**
Temperature supply:	6°C – 8°C	12°C – 14°C
Temperature return:	12°C – 14°C	18°C – 20°C
Operating pressure:	10 bar	6 bar
Antifreeze agent:	up to 35%	

conditions of setup site: capacity 50 respectively 75 kW: air conditioned room
100 kw: no requirements to AC

Stand: 03/2006

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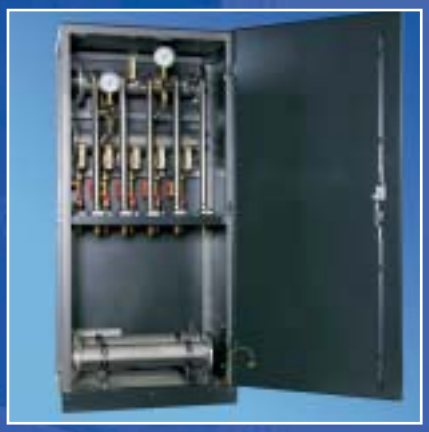
Features

- 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®- up to 100 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.

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