

## 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
<b>50 kW</b>	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 <sup>3</sup> /h	7.16 m <sup>3</sup> /h
<b>75 kW</b>	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 <sup>3</sup> /h	10.74 m <sup>3</sup> /h
<b>100 kW</b>	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 <sup>3</sup> /h	14.30 m <sup>3</sup> /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%

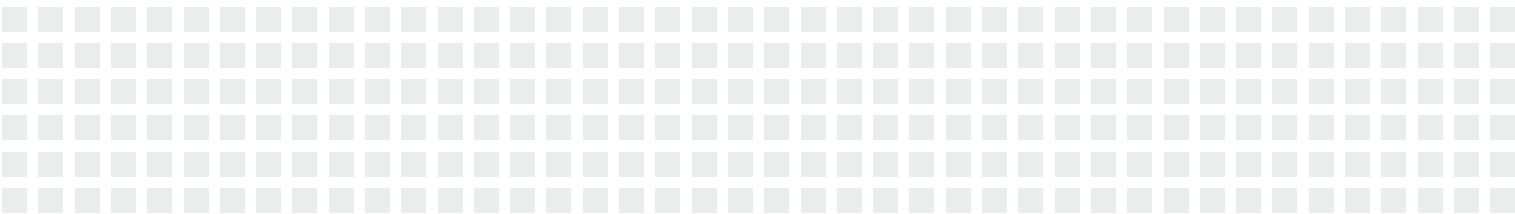
**Secondary circuit**  
12 – 14°C  
18 – 20°C  
6 bar

**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, a division of Emerson (NySE:EMR), is the world's leading provider of Business-Critical Continuity™ "Grid-to-Chip" solutions for telecommunication networks, data centers, medical facilities and industrial systems.

Emerson Network Power provides innovative solutions and expertise in areas such as AC and DC power supply, precision cooling systems, embedded computer and power supply systems, integrated racks and enclosures, network circuits and controls, monitoring and connectivity. All solutions are supported locally all over the world by Emerson Network Power customer service technicians. You will find more information on Emerson Network Power's products and support services at

[www.emersonnetworkpower.com](http://www.emersonnetworkpower.com)  
[www.eu.emersonnetworkpower.com](http://www.eu.emersonnetworkpower.com)  
[www.emerson.com](http://www.emerson.com)  
[www.knuerr.com](http://www.knuerr.com)

While every precaution has been taken to ensure accuracy and completeness in this literature, Emerson Network Power assumes no responsibility and disclaims all liability for damages resulting from use of this information or for any errors or omissions.

©2011 Emerson Network Power.  
All rights reserved throughout the world. Specifications subject to change without notice.

## Emerson Network Power™

*The Global leader in Business-Critical Continuity™ solutions.*

- |                |  |                              |                               |
|----------------|--|------------------------------|-------------------------------|
| ■ AC Power     | ■ Embedded Computing                     | ■ Outside Plant              | ■ Racks & Integrated Cabinets |
| ■ Connectivity | ■ Embedded Power                         | ■ Power Switching & Controls | ■ Services                    |
| ■ DC Power     | ■ Infrastructure Management & Monitoring | ■ Precision Cooling          | ■ Surge Protection            |

Business-Critical Continuity, Emerson Network Power and the Emerson Network Power logo are trademarks and service marks of Emerson Electric Co. ©2011 Emerson Electric Co.

### Locations

**Emerson Network Power - EMEA**  
Via Leonardo Da Vinci 16/18  
Zona Industriale Tognana  
35028 Piove di Sacco (PD) • Italy  
T +39 049 9719 111  
F +39 049 5841 257  
[marketing.emea@emersonnetworkpower.com](mailto:marketing.emea@emersonnetworkpower.com)

### Emerson Network Power - Racks and Solutions

Mariakirchener Straße 38  
94424 Arnstorf • Germany  
T +49 8723 27 0  
F +49 8723 27 154  
[info@knuerr.com](mailto:info@knuerr.com)

### Emerson Network Power - USA

1050 Dearborn Drive  
P.O. Box 29186  
Columbus, OH 43229  
T +1 614 8880246

### Emerson Network Power - Asia

7/F, Dah Sing Financial Centre  
108 Gloucester Road, Wanchai  
Hong Kong  
T +852 2572220  
F +852 28029250