

Knürr CoolTherm® 4–35 KW

Energy-efficient Server Cabinet Technology With Outstanding Benefits, To Minimize Energy Costs In The Data Center And Help Reduce Carbon Dioxide Emmisions



Setting benchmarks. Being the standard!

IT as the basis for business processes is subject to constant change. With it, however, the requirements of infrastructures also continually change.

The rising cost-relevant pressures on companies therefore demand flexible, and more importantly, expandable solutions that make it possible to react to the respective current requirements.



The objective here is to reduce investment costs to a „no more than necessary“ level, with the precondition, however, of also being able to integrate the investments made into future concepts.

Knürr provides the perfect platform for setting up a scalable solution of this kind. Knürr is one of the first global manufacturer to offer an integrated solution concept for heat loads from 1kW to 35kW per rack.

This enables financial IT investments in accordance with current requirements, and further expansions for future challenges are also possible at the same time. Intelligent power distribution systems, unique cable management and parallel

expanding and adaptable fire protection solutions complete a tailor-made scalable solution.

Servers, storage and other IT components are constantly becoming more efficient and at the same time more compact in their construction, and increasingly require less space. A data center's infrastructure requirements change considerably, especially in tackling technical and physical heat load issues and in providing the thermal management required to overcome these.

Knürr has been dedicated for over 10 years now to developing individual solutions that are necessitated by the complexity of high availability data centers and IT rooms.

Essential here is the awareness that this is not achieved just by developing and producing proven-in practice racks, but rather by focussing on an all-encompassing view on the scalability of the individual heat loads, supported by innovative and equally future-oriented components, preferably from the Knürr product portfolio.

CoolTherm® has set a benchmark that is now widely-used and recognised in the industry, and as a result has matured to become the standard.

CoolTherm® therefore ranks as one of the best performing components of a perfected complete IT solution.

.... Up To 35kW Cooling Capacity



Blade Server Optimized!

Front

Features

Cooling concept for IT applications with high dissipated heat losses – for blade and rack servers.

- V35 high performance air-to-water-heat exchanger
- Channelled airflow in the entire rack
- Heat loss discharge via cooling water
- Fans with temperature-dependent speed regulation
- Three-way valve for regulating the cooling water flow (optional)
- Fans, n+1 redundant
- Alarm management
- Redundant high-performance power distribution for supplying servers (optional)
- User-friendly and service-optimised

Advantages

- Autonomous server rack; independent from environmental conditions
- Secure and reliable cooling capacity of up to 35kW per CoolTherm® (blade servers)
- Highest packing density for high-performance servers, consequently, up to 80% surface space saving in data centers
- Reduced room and building requirements (thermal management, raised floors, room heights)
- Highest possible leakage safety with strict separation of heat exchangers and server installations
- Up to 30% improved cooling system energy efficiency
- Highest planning security with freely selectable scalability
- Significant Total Cost of Ownership (TCO) reduction



High-performance power supply



effective cooling capacity	Width	Height	Depth	Useable height	Useable depth	Weight	Water content	Electrical data
4kW	800 mm 800 mm 800 mm	2000 mm 2200 mm 2400 mm	1200 mm	39 HU 43 HU 47 HU	840 mm		2,9 kg	207 – 243 VAC 50/60 Hz 190 Watt
8kW	800 mm 800 mm 800 mm	2000 mm 2200 mm 2400 mm	1200 mm	36 HU 40 HU 47 HU	840 mm		2x 2,9 kg	207 – 243 VAC 50/60 Hz 380 Watt
12kW	700 mm 700 mm 700 mm	1800 mm 2000 mm 2200 mm	1200/1300 mm	29 HU 33 HU 38 HU	740/840 mm	290 kg	5.9 kg	200 – 264V 50/60 Hz 550W
17kW	800 mm 800 mm 800 mm 800 mm	1800 mm 2000 mm 2200 mm 2400 mm	1200/1300 mm	31 HU 35 HU 40 HU 44 HU	740/840 mm	310 kg	7.9 kg	200 – 264V 50/60 Hz 850W
25kW	800 mm 800 mm	2200 mm 2400 mm	1200/1300 mm	37 HU 42 HU	740/840 mm	340 kg	9.9 kg	200 – 264V 50/60 Hz 1150W
35kW*	800 mm 800 mm	2200 mm 2400 mm	1200/1300 mm	37 HU 42 HU	740/840 mm	340 kg	9.9 kg	200 – 264V 50/60 Hz 1150W

Spread chilled water: 12/18°C *12/22°C
 Air temperature to server: 22°C *25°C
 Air temperature return from server: 35°C *50°C
 Connection heat exchanger: 1" female threat
 Connection condensate tray: 5/8" water hose connection
Electrical data as operating power input

Pressure loss (heat exchanger):
 max. operation pressure heat exchanger:
 max. absolute humidity on site:
 Standard colours:

0.5bar
 10bar
 8g/kg
 RAL 7021 (black grey)
 RAL 7035 (light grey)

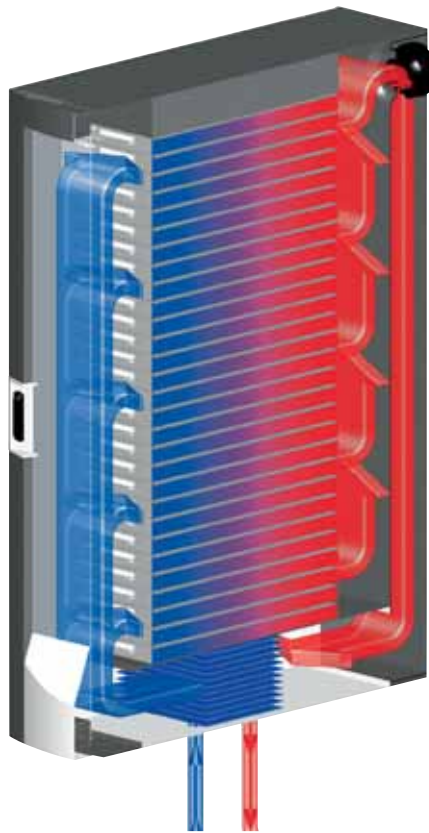
Back



Optimum ventilation, temperature-dependent and speed-controlled



Easy fan exchange while doors remain closed



The impressive Knürr **CoolTherm®** technical concept:
Closed air circulation with V35 air/water heat exchanger. The dissipated heat is therefore not given off as an additional load on the IT room (as is usual).
Connection is made installation-friendly to a building or rack-own cold water system.
Operation and service are performed with no difficulty whatsoever.
(Smaller cross-section shown)



V35® high performance air-to-water heat exchanger



V35® air-to-water heat exchanger

Heat volume to be dissipated:
CoolTherm® 22kW nominal as an example

- Water-side
 - Prerun temperature: 12°C (preferred)
 - Postrun temperature: 18°C (preferred)
 - Max. pressure loss: 0.5bar
 - Volume flow: 0.9 l/s
 - Ventilation valve
- Air-side
 - Up to 5500 m³/h
 - Air outlet: 20°C to 25°C



CoolTherm® 4-8 kW for low heat loads

Knürr CoolTherm® 4-8 kW

is based upon the Knürr Miracel^{PLUS}® server rack combined with one or two Knürr CoolServe® chassis (3HU), operating at 4 kW each.

- Strict separation of heat and cold for effective cooling
- The CoolServe® chassis can be exchanged at any stage. Upgrade to 8 kW possible by adding another Knürr CoolServe® chassis.

Knürr Is An Expert Solution Provider For Adaptive Infrastructures In Data Centers

The Knürr **CoolTherm®** defines standards that will continue to apply long into the future.

With highly developed innovative systems (based on the highest possible quality) and the enhanced thermal management presented by **High Density Cooling Solutions**, Knürr CoolTherm® sets the benchmarks when it comes to economic efficiency (TCO).

See for yourself what the benefits of this revolutionary efficiency and the already tried, tested and proven safety in everyday operations in IT rooms and data centers mean to your company.



Knürr CoolTherm® Server Rack Comes In Different Varieties, Equipped With Customer-specific Options

Uninterruptible Power Supply (UPS)

Liebert UPS systems to protect against power failure, power fluctuations and for maintenance work. It provides high availability, modular power supply systems for the most diverse processes and applications – for individual server racks, ranging from small IT rooms through to complex data centers.

Automatic door opener

Automatic front and rear door opening in case of overheating in the rack and fire extinguishing at room level. Effective intervention options in emergency situations.

Remote Monitoring System (RMS)

All procedures can be constantly monitored:

- Temperature development/control
- Fire detection
- Humidity detection
- Leakage detection
- Fan operation
- Door functions
- Vibrations

Fire detection and extinguishing

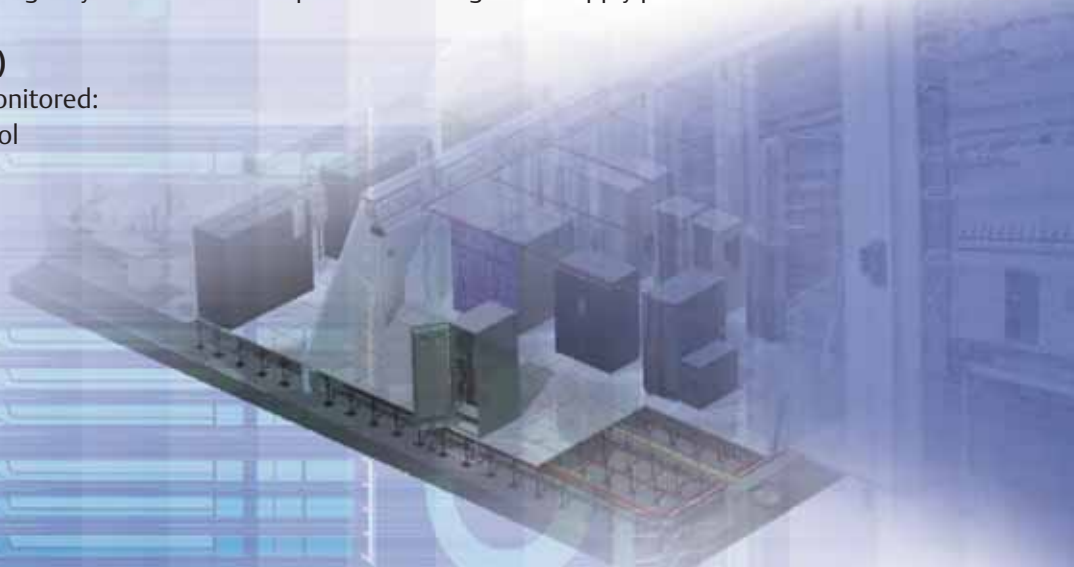
Independent and highly-effective extinguisher systems at rack and rack suite level.

Floor stand for IT rooms without raised floors

Where a raised floor is not available, racks can be equipped with a floor stand that enables power and water supply from below.

A/B cooling water feed

Redundant cooling water feed for connection to two independent cooling water supply points.



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
www.eu.emersonnetworkpower.com
www.emerson.com
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

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

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