Fact Sheet

Knürr® DCL

Knürr® DCL30L

Knürr® DCL30H with rack

Knürr® DCL:

Sidemount Cooler For Maximum Performance

The Knuerr DCL is a chilled water rack cooling unit to be installed side by side with high-density computing racks. Knuerr DCL can be used as closed air loop rack cooling device (L version) or as hybrid (H) with air supply to the front door to the room. This versatility is achieved by using interchangeable side panels to alter the air flow pattern.

Hybrid version and closed loop version support “Cold Room” concept. Air is drawn by fans from the rear of the Knuerr DCL through the heat exchanger cooled down and discharged into the front. The Knuerr DCL provides all the necessary functions of a standard rack cooling unit. Alarm functions and network communication interface allows unit to be integrated into the building infrastructure. Knuerr DCL is available in two different cooling capacities: 34kW with 6 fans at a height of 2200mm and 30kW with 5 fans 2000mm in height.

Stability is provided by self bearing bolted aluminum frame which guarantees great structural rigidity whilst keeping the weight of the unit low. This solution grants very narrow frame resulting in extremely efficient floor space usage.

Uniquely designed high performance heat exchanger grants stable levels of functionality. Hydrophilic coating and vertical orientation of it’s fins provides fast condensate drainage and excellent condensate management. All this results in very low pressure drop on both, the air and the water side. This helps the overall unit energy efficiency.

Necessary air flow is provided by highly efficient EC plug fans. Construction of the fans grants long life time and high energy efficiency. Speed of the fans is automatically adjusted within the range of 25 to 100 percent to provide the exact amount of cooling air. This also results in very low own power consumption (less than 2 % of installed cooling capacity).

Side panels are attached to the sides of the unit and can be easily removed in order to gain superior service access to any part of the unit. All units have standard Knürr rack appearance and come in different rack depths to fit various datacenter rooms. Two standard colors are available RAL 7021 and RAL 7035 (dark grey and light grey) as well as non-standard colors (customer specified).

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Standard features are:

EC plug fans (5 or 6 depending on cooling capacity)	High performance EC plug fans comply with 2005/32/EC European parliament directive for energy efficient appliances. Fan speed can be changed from 30% to 100% thus providing energy savings, great flexibility and long life time. Fans are equipped with non-return flaps preventing air recirculation in the event of fan failure and granting strict air separation.
Rack cooling controller	Rack cooling controller provides high level of availability of the DCL. It features built in multi- level fail safe functions. The controller provides (as standard) network communication via HTTP, HTTPS and SNMP (up to V3). The controller also allows creation of unit groups for team work mode. It also features outstanding environment monitoring features.
Modulating valve	The 3-way valve (controlled by highly reliable spring loaded actuator) controls the chilled water flow through the heat exchanger coil. The internal controller manages the valve actuator movement in order to maintain the desired cooling air temperature for various entering water temperatures.
Large graphic display	Large color touchscreen display provides information about unit performance and allows the parameters to be changed by operator. Unit can be ordered without display if desired.
Hydrophilic coated heat exchanger coil	Hydrophobic coating and vertical fin orientation avoid the risk of water droplets being carried by air flow. The unique design of the heat exchanger significantly reduces the air and water pressure drop thus decreasing power consumption of the unit. Micro turbulence effect enhances heat transfer.

Optional features are:

Condensate pump	Optional condensate pump can be ordered to remove condensate that has occurred during units' operation. Condensate pump is located in the bottom of the unit and its' operation is automatic.
Rack cooling controller	Rack cooling controller provides optionally Bacnet, Modbus RTU and digital user inputs and outputs for communication.
A / B transfer switch	Unit can be equipped with power transfer switch. Unit is then powered by two independent power supplies. In case of power supply failure the other power supply takes over powering the unit. This grants higher operational reliability.
Calorific meter	Knuerr DCL can be equipped with calorific meter device. Cooling capacity is calculated based on chilled water flow and temperature difference of the water across the heat exchanger. Calculated value is then shown on the display.
Humidity monitoring and smoke detection	Unit can be equipped with smoke detecting and / or humidity sensors to provide more information about cooling air especially inside closed architecture units.
DCM options	For monitoring adjacent racks DCL can be ordered with door contacts, automatic door opening and additional temperature sensors. These options grant outstanding datacenter monitoring and control.

Your benefits:

- High density, high precision cooling unit with excellent floor space utilization
- Reconfigurable air flow patterns to suit changing needs
- Wide range of possible chilled water temperature feed
- High energy efficiency due to EC fans and low water and air pressure drop
- High reliability due to first grade components
- Outstanding data monitoring system due to state of the art internal controller
- Superior serviceability

Technical details

	DCL 30	DCL 34
Nominal cooling capacity*	30 kW	34 kW
Air flow	5000 m3/h (3237 CFM)	6000 m3/h (3885 CFM)
Water flow	4.5 m3/h (20 GPM)	5.0 m3/h (22 GPM)
Max. water pressure	10 bar (145 PSI)	10 bar (145 PSI)
Number of fans	5	6
Fans power consumption	5 x 170 W	6 x 170W
Dimensions (WxDxH)	300x1000 (1100) (1200)x2000 [mm]	300x1000 (1100) (1200)x2200 [mm]
Heat exchanger internal fluid volume	10,72 l / 2.83 gal.	11,93 l / 3.15 gal.

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