

STULZ the natural choice

CyberChill

water-cooled server racks



CyberChill: Water-cooled server racks for the hardware of tomorrow



Modern IT and communications technology is becoming increasingly compact, fast and efficient.

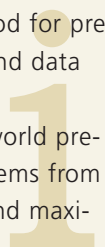
Densely packed computer and server racks often produce spot heat loads exceeding 10 kW/m^2 , which cannot be managed with conventional air-conditioning technology. CyberChill, the water-cooled server racks from STULZ, have been specially developed for use in the high-density data systems sector. They take up to 42 U of equipment and achieve cooling capacities up to 22 kW in the smallest possible space.



STULZ competence in air-conditioning

For over 30 years the name STULZ has stood for precision air conditioning in IT departments and data centres.

In thousands of data centres all over the world precision air-conditioning equipment and systems from STULZ ensure ideal operating conditions and maximum availability.



The advantages of CyberChill at a glance:

Space-saving: A high computer performance in the smallest possible space (up to 42 U)

Efficient: A high cooling capacity through integrated water cooling (up to 22 kW)

Protected: All water-bearing parts under installed equipment, possibility of contact between sensitive hardware and water ruled out

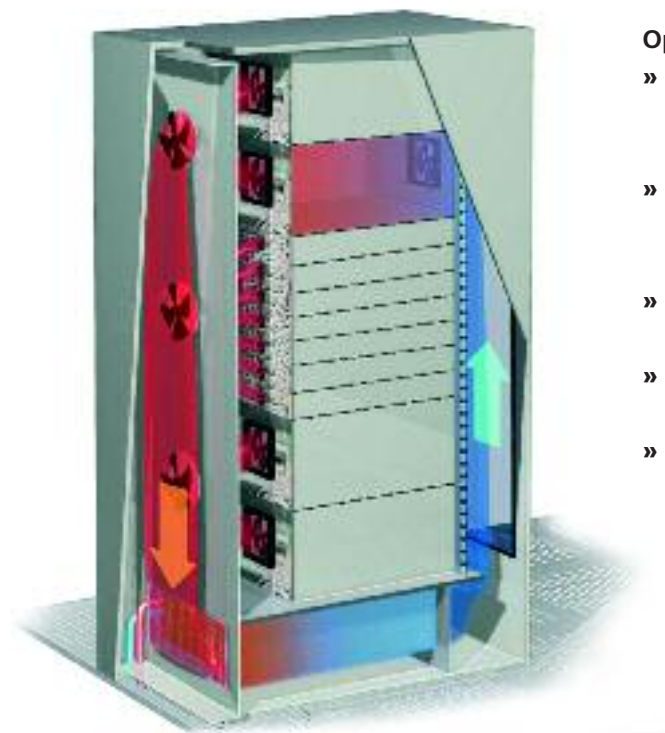
Flexible: Installation possible anywhere independently of room climate, no raised floor necessary, silent operation

Energy-saving: Cooling as required using speed controlled fans

Reliable and safe: Enclosed cabinet IP 55, airflow ducting, redundant fans, alarm management with potential-free contacts for failure of fans, sensor errors, high temperature and fan fail-safe function

Controllable: Optional monitoring system via TCP/IP, SNMP

Future-proof: Cooling capacity for the hardware of tomorrow



Options for even greater safety and comfort

- » **Rack monitoring system:** For the continuous monitoring of all rack components, early detection of faults, event logs, activation of warning signals
- » **Water connection kit:** For simple installation, 1.5 m reinforced hose with non-splash locking quick connection
- » **Blanking panels:** To seal off unused units and as protection from internal rack /"air short circuits"
- » **Redundant power supply:** To increase availability
- » **Control valve for water circuit:** To avoid the formation of condensate in the heat exchanger with operation at partial load



Water cooling when air is not enough

When heat loads in data centres exceed 1.5 kW/m^2 , the air gets a bit short for traditional air-conditioning systems. This is why CyberChill, the new server racks from STULZ, are cooled with water as water transports 3,500 times more heat than air. As a result, coping with heat loads exceeding 10 kW/m^2 becomes child's play.

High availability and reliability

CyberChill server racks are equipped with a closed air cooling circuit, which includes all units and is cooled via an air-water heat exchanger.

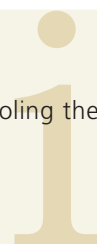
All water-bearing parts are positioned under the servers, reliably separated from the electronic systems. Variable-speed and redundant fans ensure economical operation and maximum availability. CyberChill is thus also able to deal with extreme heat loads safely and reliably.

Calculation of heat loads

One third of the area of a data centre is on average taken up with racks and two thirds with aisles and the air-conditioning / safety equipment. As a result, the gross heat load of a room equipped with 15 kW racks

is calculated to be 5 kW per square metre.

In data centres with traditional room air cooling the limit is 1.5 kW per square metre.



Source:
Photos Knürr AG



Independent and usable anywhere

CyberChill server racks are available in three sizes for cooling capacities up to 10, 15 and 22 kW. As autonomous systems they can be integrated either in existing air-conditioning equipment or set up independently in any room without the need for a raised floor.

Closed air circuit

Rack cooling systems with an open air circuit burden their environment with noise and unpleasantly high temperatures. CyberChill server racks operate with closed air circuits that emit virtually no noise or heat.

This means they ensure precise cooling without noise or high temperatures.

Together with the CyberCool Indoor Data-Chiller and the silent (40 dBA) external unit CyberChill can deliver a complete overall water-cooling solution.



CyberChill

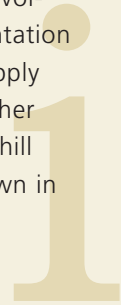
Technical Data

CyberChill		CCR 10	CCR 15	CCR 20	CCR 20*
Cooling capacity	kW	10	15	22	35
Water supply temperature	°C	12	12	12	12
Water return temperature	°C	18	18	18	22
Water flow rate	m³/h	1.43	2.15	3.15	3.15
Pressure drop	kPa	50	50	50	50
Connecting diameter	inch	1	1	1	1
Water volume	l	5.9	7.9	9.9	9.9
Air volume	m³/h	2,000	3,100	4,500	4,500
Supply air temperature	°C	20	20	20	25
Return air temperature	°C	35	35	35	50
Rack data					
Usable height (horizontal)	HE	38	40	42	42
Usable height (vertical)	HE	3 x 1	3 x 1 and 2 x 2	3 x 1 and 2 x 2	3 x 1 and 2 x 2
Noise level, 2 m free field	dBA	50	50	50	50
Nominal power	kW	1.0	1.4	1.8	1.8
Dimensions (HxWxD)	mm	2,200 x 700 x 1,200	2,200 x 800 x 1,200	2,400 x 800 x 1,200	2,400 x 800 x 1,200
Weight		290	310	340	340
Load, max.	kg	800	800	800	800
Rack system		For 19" technology; depth up to 740 mm; with horizontal air flow direction from front to back			

* The data in this column include diverging water and air conditions



The permissible supply temperature, heat load and air volume of the internal fans can be found in the documentation of the hardware manufacturer. Standard values are supply air 20 to 22 °C and temperature increase 15 °C. If higher supply and return temperatures are permitted, CyberChill can also attain cooling capacities up to 35 kW, as shown in the right-hand column.



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