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Door HEX, LCP Hybrid and connection on the OCP V2 Rack

Resul Altinkilic, Product Manager, Rittal
Functional principle

Cooling Steps
Step 1:
• IT equipment takes the cool air from the environment
Step 2:
• Servers blowing the heated air via internal fans to the Door HEX
Step 3:
• The heated air is getting cooled by the HEX and goes back to the environment.
Functional principle

• Water cooled solution, connection possibilities from raised floor or from the top

• Aisle system are not necessary, because the complete date center acts as a cold aisle containment

• Homogeneous temperature distribution in the entire data center
Functional principle

Top view of connection Door HEX and rack

- No fans in the door (passive version)
- Air baffles plates at the rear of the server rack guide the air flow directly to the door HEX

Sideways airflow
- For e.g. Cisco switches enters the air from the left side and pushing the heated air from the right side
- Don't mix Front to Back and Sideway airflow in live operation
Water Connection

• Fixed DN25 connection on the door HEX can connect via hose or fixed pipe to the facility
• Cold water is getting sourced by chiller plant or free cooling plant
• Ball valves (right picture) are installed on facility side
• Service and maintenance can be done by closing the valve
Free cooling and Door HX

• Door HEX is perfect for use with indirect free cooling (till 22°C)

• If the outside temperature is rising (more than 22°) then you produce the cold water with the chiller

Share of free cooling 93.9%

Share of Chiller 6.1%
Benefits

- Cooling output ranges from 10kW to 20kW
- 130° hinges to enable free access to the IT rack
- Coated heat exchanger – no dust deposits
- Efficient operation at high water inlet temperature – high share of free cooling
Synergies to OCP ACS Door HX Spec Rev01

Physical synergies to Open Standard Door HX Spec Rev01:
- 600mm x 2000mm x 105mm (w x h x d)
- HEX door opening allows 130°
- Access for maintenance and service
- Water connection 1“ female = DN25
- Redundancy: N+1 pumps (2 pumps) in facility
- 15°C water inlet temperature
- Water flow rate 30l/min
Call to Action
How to get involved in the project.
https://ocp-all.groups.io/g/OCP-ACS

ACS Project Wiki:
https://www.opencompute.org/wiki/Rack_%26_Power/Advanced_Cooling_Solutions

Specification 0.2:
https://docs.google.com/document/d/1NW-67-tXHGIt45aEbZn2ABGFXhM93lWPIJaVsxLLxg/edit#heading=h.haapch

Mailing list:
https://ocp-all.groups.io/g/OCP-ACS
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