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

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OPEN GOLD®

Functional principle

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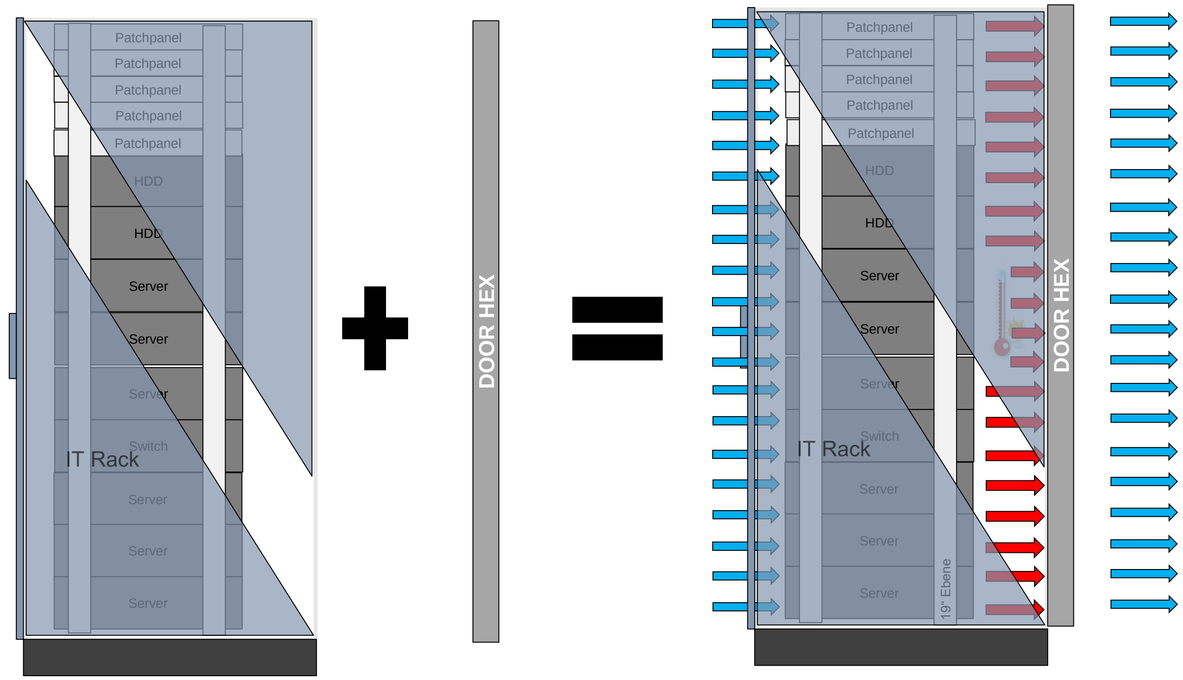


Side view of connection Door HEX and rack

Cooling Steps

Step 1:

- IT equipment takes the cool air from the environment

Step 2:

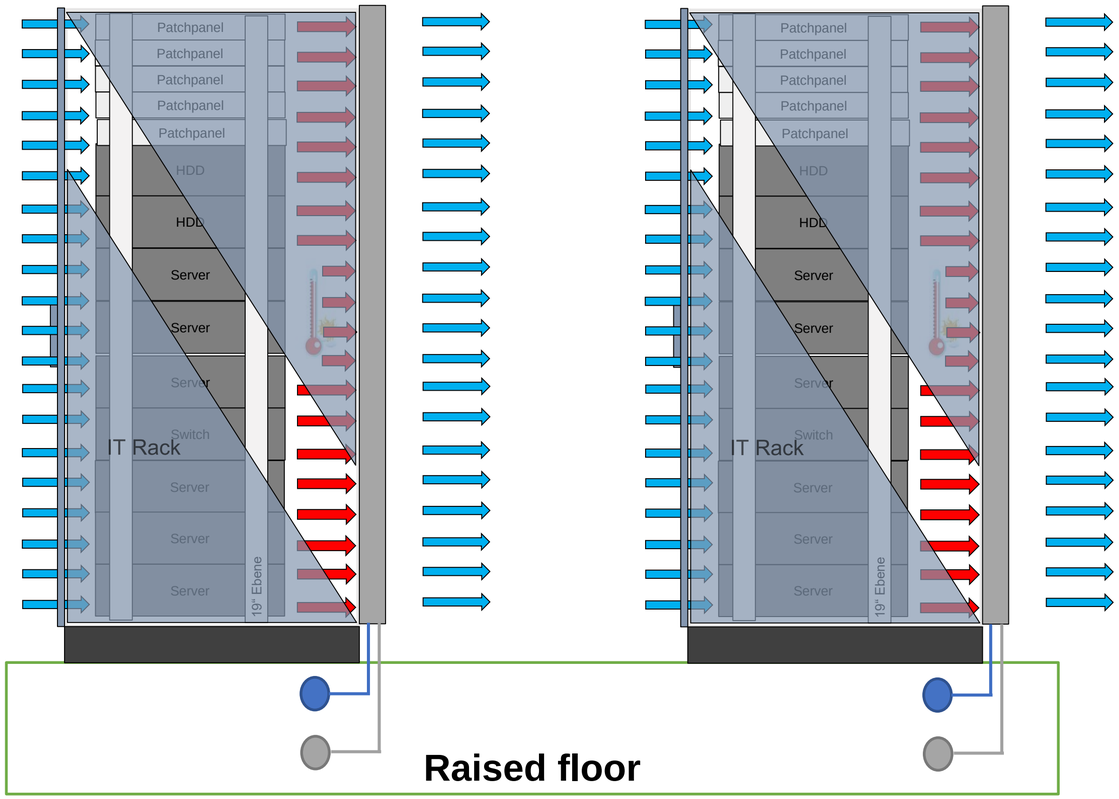
- Servers blowing the heated air via internal fans to the Door HEX

Step 3:

- The heated air is getting cooled by the HEX and goes back to the environment.

Functional principle

ACS



- 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

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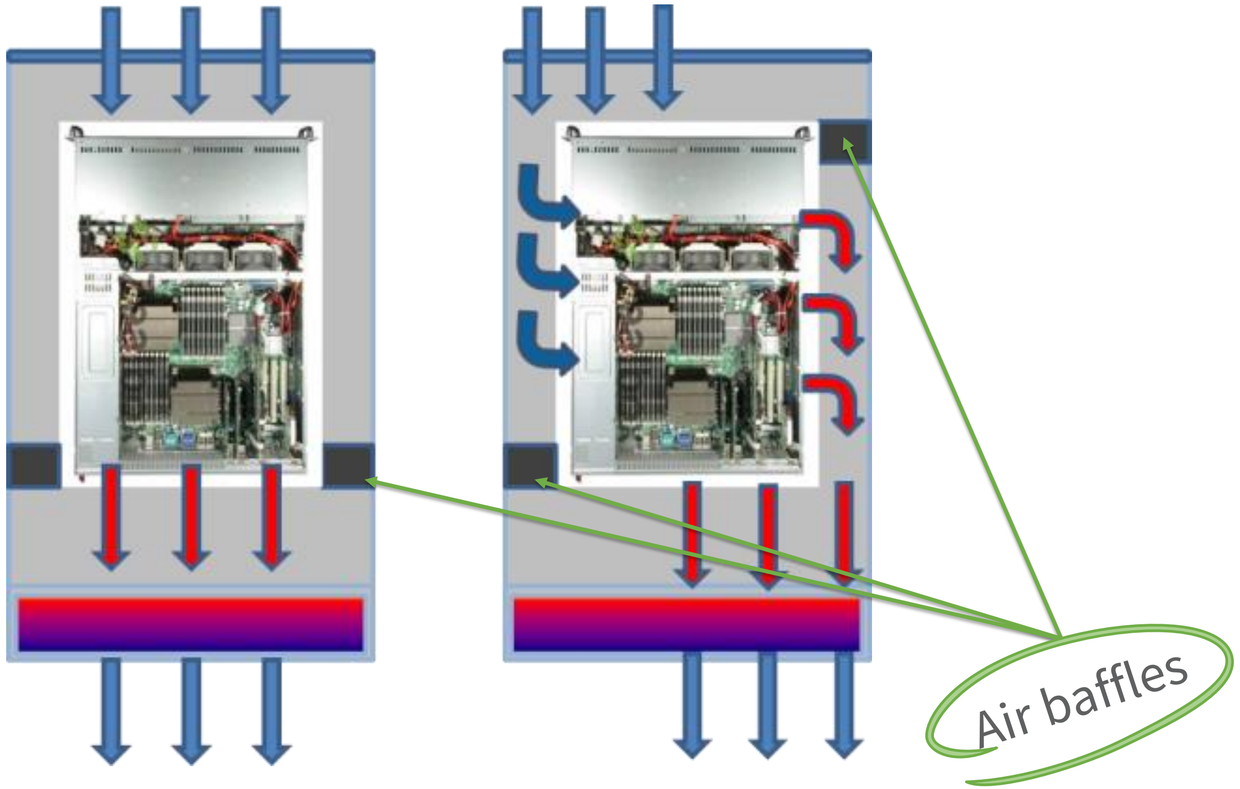
Front to Back Airflow

Sideways airflow



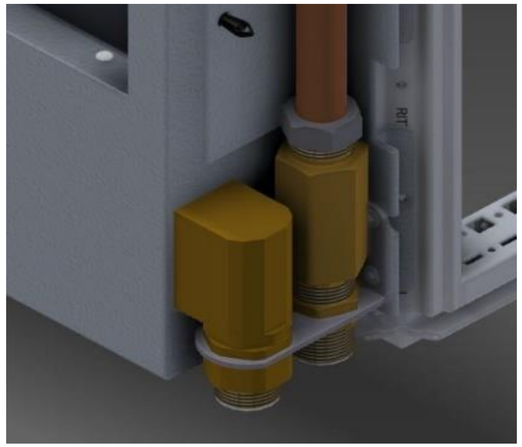
Top view of connection Door HEX and rack

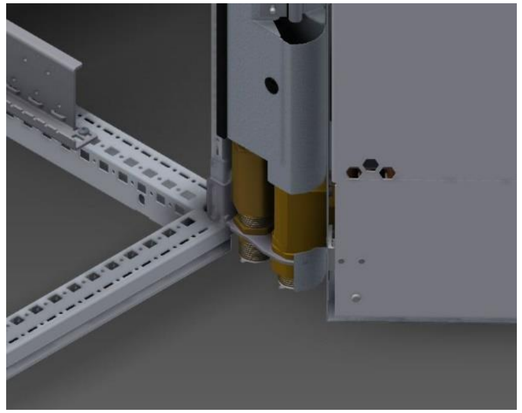
- No fans in the on the door (passive version)
- Air baffles plates at the rear of the server rack guide the air flow directly to the door HEX

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





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- 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

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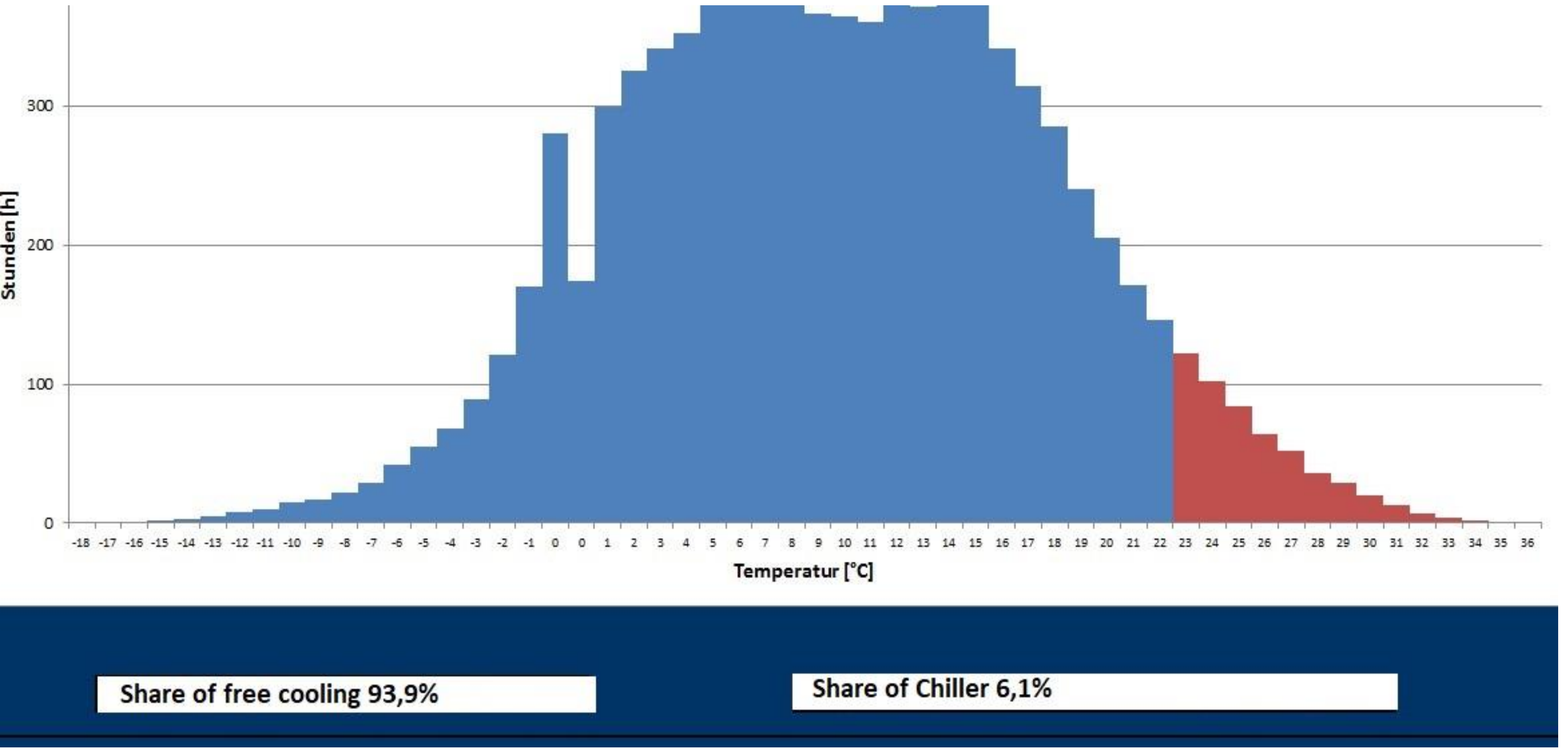
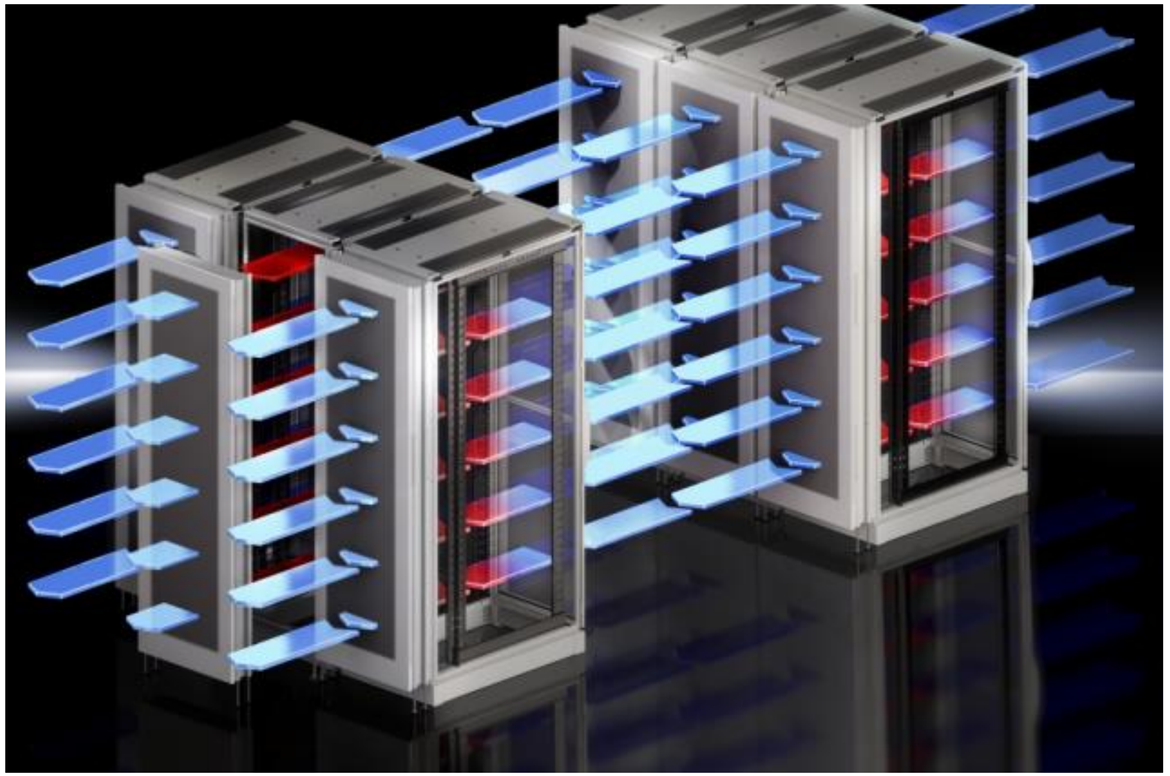


- Door HEX is perfect for use with indirect free cooling (till 22°C)
- If the outside temperature is rising (more than 22°) then you produce the cold water with the chiller

Benefits



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- 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

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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-tXHGit45aEbZn2ABGFXhM93IWPiGJaVsxLLxg/edit#heading=h.haapch

Mailing list:

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


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