The Coolcentric® Rear Door Heat Exchanger (RDHx)

The World’s Most Energy Efficient and Space-Saving Cooling Solutions for Data Centers

The Coolcentric® Rear Door Heat Exchanger (RDHx) is a passive liquid cooled heat exchanger that replaces standard rear doors on IT enclosures. The RDHx employs a specially-designed fin and tube coil, protected by two 79% open perforated sheets, to maintain airflow through the IT enclosure. The rack-mount devices draw cool supply air through the chassis. Heated exhaust air passes through the liquid-filled coil, which can neutralize 100% of the exhaust air before reentry into the data center. The RDHx can provide as much as 33kW of sensible cooling per IT enclosure. Close-coupled to the rear of the IT enclosure, the RDHx brings the cooling as close to the heat source as possible thus providing the ultimate containment solution. Taking up a minimum of floor space, the RDHx is a flexible, efficient and space-saving cooling solution to data centers.
The RDHx is part of a turn-key liquid-cooled solution for data centers. Included in the product suite are Coolant Distribution Units, which monitor and manage the flow of cooled, treated water in a closed loop environment to the RDHx units. Coolcentric also designs and manufactures a full breadth of standard and custom hose kits and external manifolds. Factory certified technicians are available to provide installation, commissioning and preventive maintenance throughout the world.

**How can the RDHx help you?**

Data centers are at a crossroads. Demand for compute, storage and communications capacity is growing rapidly. IT equipment is consuming more power and generating more heat. Electric rates are projected to increase in the coming years. Meanwhile, business and economic pressures are forcing enterprises to consolidate facilities, streamline operations and aggressively drive down IT costs. So how can you address these conflicting demands and grow your data center capacity while reducing costs?

**Coolcentric RDHx reduces data center space requirements by more than 80%**

**Space** - Whether you own, lease or outsource your data center, odds are you have either too much space or not enough. Corporate mandates to drive down costs are accelerating data center consolidation using new technologies such as virtualization and cloud computing. While new technology allows data centers to "do more with less" it also leads to increased rack power densities and creates distinct cooling challenges, especially in existing data centers. Putting more cooling equipment into an already space-constrained facility may not be feasible. The RDHx offers complete flexibility in configuring your data center. The RDHx allows increased rack densities that improve space utilization.

- **Replaces** existing rear doors on IT enclosures, takes up a minimum of floor space and no U space.
- **Compatible** with most IT enclosures on the market.
- **Installs in minutes** without disrupting IT services and without major infrastructure changes.
- **Door swings fully open** for access to equipment.
- **Doesn’t require hot-aisle, cold-aisle configuration**, place IT enclosures in any arrangement.

- **RDHx units support either top-feed or bottom-feed installation.**
- **Doesn’t require raised floors or excessive overhead space** in your data center.
- **Operating above dew point** eliminates the need for condensate drains or pumps.

**Coolcentric RDHx NEUTRALIZES up to a 100% of heat at the source...**

Quick connect couplings allow for easy attachment.
Coolcentric RDHx uses 90% less energy than indoor cooling units.

Power – As IT infrastructure scales, so does power consumption. Rising energy costs can cause operating expenses to grow out of proportion in a data center’s budget. Cooling can account for up to 55% of a data center’s total annualized operating cost. The RDHx neutralizes up to a 100 percent of heat at the source, returning cooled air into the data center, for up to 33kW of heat load per enclosure. The RDHx is a passive device that doesn’t use fans, making it a very efficient cooling product. In-room, in-row and in-rack air-cooled systems require fans which consume power, generate heat and add to the noise level in the data center.

Coolcentric RDHx reduces Capital and Operating TCO

Total Cost of Ownership (TCO) – The average cost of operating data centers has grown three times faster than capital investment in new IT equipment. Key drivers for uncontrolled TCO growth include cooling equipment capital expense, inefficient designs, high installation costs, rising energy bills and ongoing maintenance. The RDHx solution offers a very attractive TCO value to end users.

RDHx is Scalable. In typical data center installations, the infrastructure required to support perimeter or in-row cooling must be built in on Day One. Because the RDHx can be installed quickly and easily and requires no pressurized raised floors, air plenums, exhaust chimneys, etc., you can build as you grow. Add units as you add computing, and don’t pay for infrastructure that you don’t need.

The RDHx is Reliable. With no moving parts, the RDHx requires little if any regular maintenance. In fact, the RDHx comes with a three-year limited warranty.

The RDHx is highly Predictable. The RDHx uses a closed-loop circulatory system and connects to a Coolant Distribution Unit which monitors the temperature and pressure conditions, increasing and decreasing flow as conditions change in the data center. Close coupled to the IT enclosure, the RDHx neutralizes the heat before it can contaminate any cool supply air. This system approach offers data center operators consistent and predictable cooling to meet their changing IT demands.

RDHx is Flexible. The patent pending transition frame allows a RDHx model to fit on a wide variety of enclosure models. The RDHx can also utilize chilled water from several sources such as chillers, dry coolers or water side economizers.
Enclosure Compatibility:

AFCO, APC, APW President, Black Box, Chatsworth Products, Cooper B-Line, Damac, Dell, Electrorack, Electron Metals, EMC, Great Lakes, HP, IBM, IMS/Amco, NER, Ortronics, Panduit, Rittal, Siemon, SMC/eSystems, Sun, Wright Line/Eaton and more. Call Coolcentric for companies not listed.

Rear Door Heat Exchanger (RDHx) Advantages:

- Provides up to 33kW of sensible cooling at 100% neutralization with no condensation
- Passive design – no fans, moving parts or electrical connections = virtually no maintenance required
- No noise is generated, RDHx actually dampens IT enclosure noise
- Installs in minutes
- No rearrangement of enclosures required
- Allows SX the compute power versus air-cooled data center facilities
- Patented Rear Door Heat Exchanger technology*
- No condensate and no thermal impact on data center
- Highly predictable cooling
- Ultimate in containment

Rear Door Heat Exchanger (RDHx) Specifications:

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<th>Enclosure U Space</th>
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<tr>
<td>RD2W#S</td>
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<tr>
<td>Nominal at 100% neutralization</td>
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<td>Maximum at 100% neutralization</td>
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<thead>
<tr>
<th>Width of RDHx</th>
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<tbody>
<tr>
<td>RD2W#S</td>
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<tr>
<td>Nominal at 100% neutralization</td>
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<td>Maximum at 100% neutralization</td>
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* Patent No.s: USA: # 7,830,657; 7,385,810; 6,819,563  |  China: #201020293865.9  |  Taiwan: # 99213807  |  Japan: # 2010-008268

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