NEXPAND

CHILLED WATER | ROW-BASED COOLING

CW40 & CW60

MINKELS
A brand of legrand

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HIGH DENSITY APPLICATIONS demand high intensity, active cooling

Chilled water (CW) row-based active cooling is designed according to the latest data center technology requirements and part of the Nexpand platform. The CW row-based cooling provides a smart, solid, secure, sustainable solution.

SMART
UNLIMITED POSSIBILITIES

SECURE
KEEP YOUR DATA SAFE

SOLID
THE NEXT STEP IN RELIABILITY

SUSTAINABLE
THE NEXT STEP IN ENERGY EFFICIENCY

The amount of power used by each data center rack continues to increase. The rapid development and increased usage of digital transformation technologies translates into a requirement for higher density computing environments, and the essential data center infrastructure to support them. Artificial intelligence, big data analytics, machine learning, research and many other high performance computing (HPC) applications are placing new demands on the data center. Computing densities are increasing and this requires a corresponding improvement in data center cooling solutions.

Minkels is addressing this need for high density, high intensity cooling by adding a Chilled Water (CW) option to its Nexpand row-based Active Cooling portfolio.

The 40 and 60 kW models bring all the benefits of row-based cooling to the high density computing environment:

- Cooling equipment is close to the heat source
- Shortening the airflow path, thereby decreasing power consumption of the fan units
- Providing a fast, dynamic response of the coolers to changing heat densities.
- Sustainability is at the forefront of the Nexpand row-based cooling solutions.

The CW cooling models can be deployed between cabinets, or bayed to a single cabinet and offer a flexible architecture – the models can be used as part of a row of cabinets, or on a one cabinet to one cooler ratio or, for very high density applications, two coolers for one cabinet.

The increasing importance of intelligent automation technologies to help manage the data center environment is reflected in the CW unit's range of communications options, based on state of the art Carel hardware:

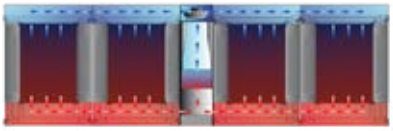
- Serial communication with RS485 comes as standard
- Ethernet communication options (SNMPv2c, BACNET, MODBUS TCP/IP) are available to facilitate Building Management System (BMS) connectivity.
- Up to 16 DX units can be connected in a LAN network with a maximum of 8 subgroups to work together in a functional manner (e.g. cooler rotation).

AIRFLOWS

Additionally, the CW units can be used as part of either an open loop (hot or cold) aisle containment system, or without aisle containment – closed loop; come with a dual power supply; and can be fully integrated with both Minkels Nexpand cabinets and containment solutions.

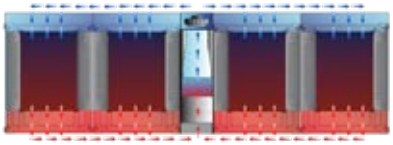
Closed loop solution

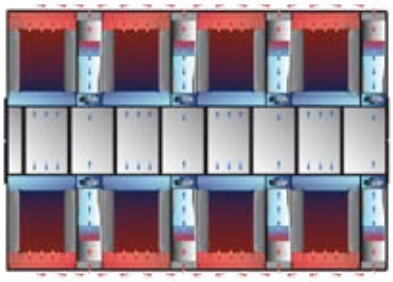
In a closed loop solution, the indoor unit's airflows are directly guided into the adjacent 19-inch cabinets. During this process, the indoor unit extracts the hot air directly from the IT-equipment and, as cold air, guides this back to the front. No exchange of air in the room in which the setup is located takes place. The system enables you to divide the cooling capacity over several cabinets.



Open loop solution

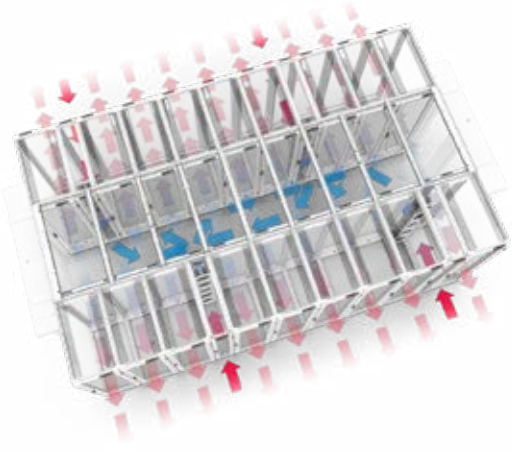
In an open loop solution, the cooling air is brought directly into the room outside of the cabinets. The module extracts the hot air from the room (hot aisle) and, as cold air, guides this back to the front (cold aisle) of the cabinet. For an optimal result, it is recommended to apply the Nexpand aisle containment system when using an open loop solution.



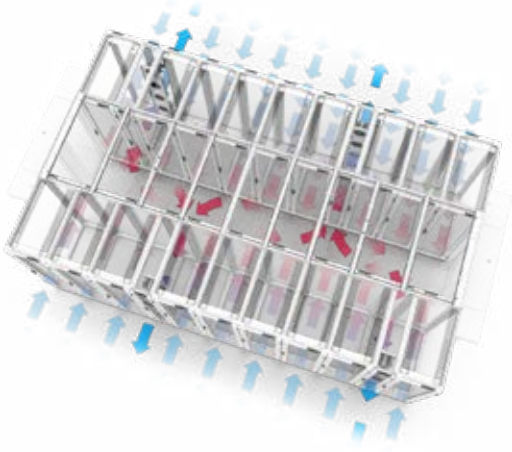


Hot and Cold Aisle Containment with row-based active cooling

The Nexpand cooling portfolio is perfectly compatible with industry standard hot-aisle and cold-aisle cooling typologies. Depending on customer specific needs either cooling strategy can be chosen and the corresponding cooling, cabinets and containment solution shall be designed and delivered as such.



Cold aisle containment



Hot aisle containment

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Features and benefits

TOP AND BOTTOM PIPING CONNECTIONS

Connections for piping may enter the cooler from either the top or bottom of the unit. To facilitate this, all versions of the CW40 and CW60 accommodate top and bottom piping entry into the cooler. Also included on top and bottom are cable throughputs for connectivity, power and condensate discharge.

DISPLAY

The display is placed at eyesight and is seamlessly integrated in the perforated or blind doors. The latter depends on the chosen cooling configuration. It enables reading the most important values for the cooling performance, such as cold and hot aisle temperatures as well as fan speed and the degree of opening of the water valve. The standard display comes with buttons to navigate through the controller software. The display can be upgraded with a touch screen display for a more premium look and feel of the cooling solution.

ADVANCED CONTROL & MONITORING

To make sure you always know how the cooler is performing these are equipped with remote monitoring possibilities. Modbus RTU is standardly available as well as digital in- and outputs. This will allow you to monitor and control a vast number of business-critical parameters. Please review the list of options for more possibilities regarding remote monitoring & control.

CW40 - closed loop configuration

HOT SWAPPABLE FANS

The coolers are equipped with hot-swappable fans. To minimize possible downtime due to fan failure, this feature enables swift and safe replacement of the fans. The unit does not need to be turned off to replace the fan(s), so the issue of a faulty fan can be resolved in a matter of minutes.

EC FAN TECHNOLOGY

The fans are all equipped with EC fan technology. The benefits are an extended lifetime and a significant increase in the energy efficiency of the unit. Also, the fans are equipped with emergency speed functions. This means that even with controller downtime the fans are still running.

NEXPAND FRAME

The cooling technology is fully integrated in a Nexpand frame. In this way you benefit from the same look & feel throughout your white space solution. Baying to adjacent cabinets is done in the exact same way as baying IT cabinets.

SECURITY

As the Coolers are based on the Nexpand platform the front and rear closure is the same as with the standard IT cabinets. Apart from keeping the same look & feel it also enables the use of the same mechanical locking possibilities as with our range of IT cabinets. With this we ensure the highest level of security possible.

HYDROPHILIC COILS AND INTEGRATED FLOAT SWITCH

As a standard all our models feature heat exchangers with Hydrophilic treatment. This special coating facilitates the condensate discharge towards the drip tray which is placed below the heat exchanger. The purpose of the drip tray is to collect and dissipate any condensation that may occur during operation. As an extra security feature each cooler is standardly equipped with a float switch installed in the drip tray. The purpose of the float switch is to sense when a maximum level of condensate is reached. When activated, it shall give a Flooding Alarm. If this alarm occurs, it may indicate a blocked condensate discharge and/or excessive condensation. Our specialist will always offer a solution that works with 100% of sensible cooling capacity. However, in the rare cases condensate might occur it is re-assuring this is properly taken care of.

CW60 - open loop configuration

DUAL POWER FEED

To ensure your cooling system remains up and running even after power outage of the main feed we have standardly integrated a dual power feed that automatically switches to the redundant power feed.

SLIDE-OUT ELECTRICAL BOX

For the CW40 cooler, which is 300mm wide, the electrical box is designed to take up as little space as possible without interfering with air distribution over the whole working height of the unit. To achieve this, without affecting accessibility during the initial start-up and unscheduled maintenance operations, a sliding drawer version has been created. This design also prevents tangling of the wiring whilst sliding.

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Options

You can expand your CW cooler with various options.
Find the possibilities below

CONDENSATE PUMP

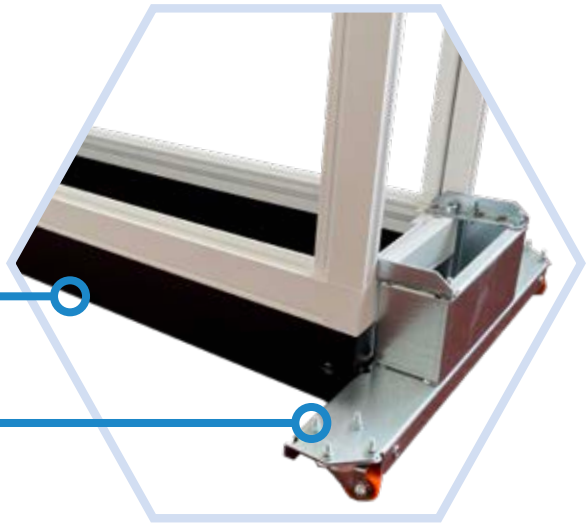
When condensate discharge via gravity is not possible because of a concrete floor or other limitations, a condensate pump can be chosen. This will get rid of any condensate that may occur from the drip tray where it is collected from the heat exchanger.

TOUCH SCREEN

To upgrade your cooler for a more user friendly and high-tech feeling a touch screen display can be chosen. It utilizes the same cut-out in the door as the standard display so even retrofit upgrades are an easy job.

ADVANCED MONITORING

When monitoring through other communications protocols is a need, we can support this by upgrading with the pCOWeb card. It features communication with SNMPv2c, BACNET, Modbus over TCP/IP and it is equipped with an integrated webserver.

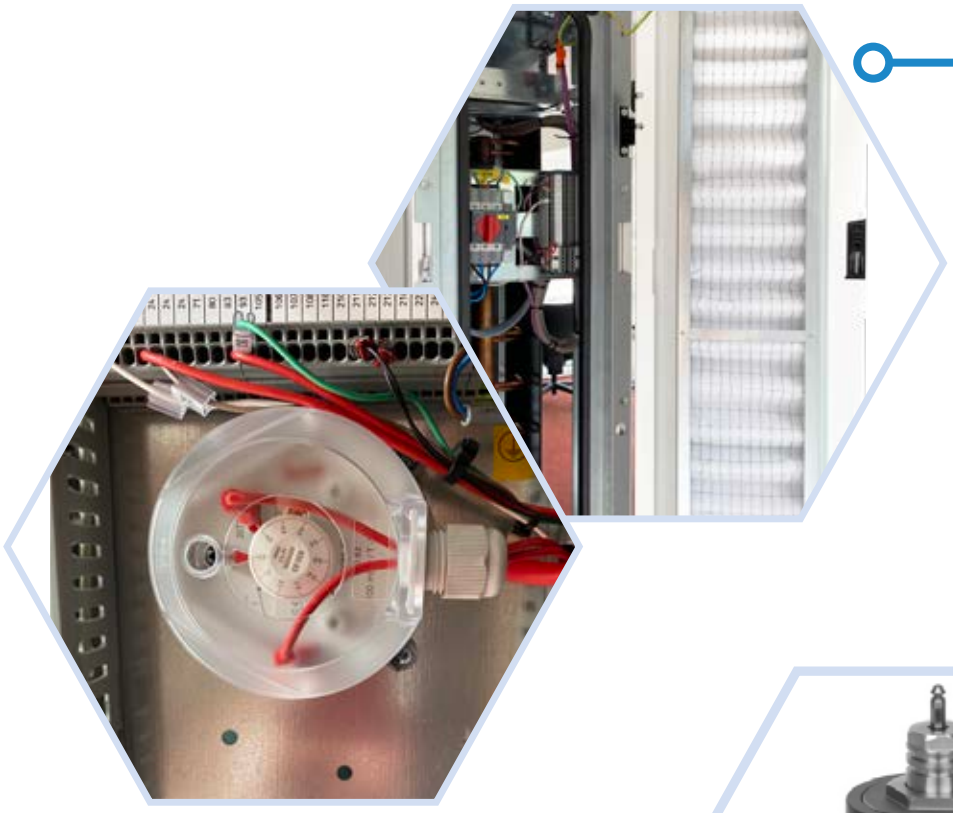


BASE-SET 100MM

When there are requirements when it comes to piping work and/or cabling underneath the cooler, a base-set which extends the height with 100mm can be deployed. The base-set is also available for our standard range of IT cabinets so the entire set-up including cooling can be perfectly aligned and have the same look & feel.

TRANSPORT TOOL

Safety and ease of transportation are important factors especially in the initial stages of the cooler deployment. To ensure a safe placement of the coolers which, due to their weight and form factor, have a risk of tipping over, we have developed a dedicated transport tool. The tool is easy to mount and remove and it also improves the maneuverability of the cooler in the white space area.



FILTER SET G4 + DIFFERENTIAL PRESSURE SENSOR

To collect potential dust and particles we can offer a filter set class G4. A differential pressure sensor will detect at a pre-defined threshold when it reaches the maximum pressure. This will indicate a clogged filter so it can be replaced at the next service interval or prior to that.

3-WAY VALVE

As a standard 2-way valves are integrated in the hydraulics circuit of the coolers. The 2-way valves are meant for cooling infrastructures with variable flow. As an alternative, in the case of systems with a fixed flow, we can offer our hydraulics circuit with a 3-way valve.

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