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# SK 3311.230

## Liquid Cooling Package

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ENCLOSURES

POWER DISTRIBUTION

CLIMATE CONTROL

IT INFRASTRUCTURE

SOFTWARE & SERVICES

FRIEDHELM LOH GROUP



# SK 3311.230 - Liquid Cooling Package LCP Rack CW, LCP Rack CWG

Cooling via high-performance compact impellers. The LCP draws in the air at the sides at the rear of the server enclosures and blows the cooled air back into the front part of the server enclosure at the sides.

## Features

Model No.	SK 3311.230
Benefits	<p>Maximum energy efficiency due to EC fan technology and IT-based control</p> <p>Minimal pressure loss at the air end, which in turn minimises the power consumption of the fans</p> <p>Control of the server inlet temperature</p> <p>With redundant temperature sensor integrated at the air end as standard</p> <p>Optimum adaptability due to dynamic, continuous control of the cold water volume flow</p> <p>By using high water inlet temperatures, the proportion of indirect free cooling is increased, which in turn reduces operating costs</p> <p>Targeted cooling output due to modular fan units</p> <p>Fan modules configurable as n+1 redundancy</p> <p>Standard 3-phase connection for electrical redundancy</p> <p>The separation of cooling and enclosure prevents the ingress of water into the server enclosure</p> <p>A footprint of max. 0.36 m<sup>2</sup> for all cooling services</p> <p>Improved heat recovery, thanks to high water return temperatures when using LCP CW glycol variants, for example in combination with a heat pump</p> <p>Optimum access for maintenance and servicing from the front and rear</p> <p>Tool-free replacement of the fan modules</p>
Function principle	<p>The LCP draws in the air at the sides at the rear of the server enclosures, cools it using high-performance compact impellers, and blows the cooled air back into the front part of the server enclosure at the sides</p>
Material	Sheet steel, spray-finished

# Features

Colour	RAL 7035
Options	Fully integrated fire detection and extinguisher system Automatic server enclosure door opening Direct connection of additional CMC III sensors is supported Racks 2200 mm high
Design	Rack cooling
Monitoring	Monitoring of all system-relevant parameters such as server air intake temperature, server waste air temperature, water inlet/return temperature, water flow, cooling output, fan speed, leakage Direct connection of the unit via SNMP over Ethernet Integration into RiZone
Total cooling output/Number of fan modules	10 kW/1 20 kW/2 30 kW/3
Total cooling output	10 kW With one additional fan module, total cooling output increases to 20 kW, with two to 30 kW. A maximum of two additional fans can be installed. 20 kW 30 kW
Air throughput (unimpeded air flow)	At 50 Hz: 4,800 m <sup>3</sup> /h At 60 Hz: 4,800 m <sup>3</sup> /h
Number of fan modules in supplied state	1
Dimensions	Width: 300 mm Height: 2,000 mm Depth: 1,200 mm
To fit enclosure type	TS IT
Installation in bayed enclosure suite	Flush
Rated operating voltage	230 V, 1~, 50 Hz/60 Hz 400 V, 3~, 50 Hz/60 Hz
Max. cooling output	30 kW
Type of electrical connection	Connector
Duty cycle	100 %

# Features

EC fan	Yes
Fans may be exchanged with the system operational	Yes
Temperature control	Linear fan control Two-way control valve
Water connections	DN 40 (G 1½" external thread)
Water inlet temperature	15 °C
Protection category to IEC 60 529	IP 20
Options	Fully integrated fire detection and extinguisher system Automatic server enclosure door opening Direct connection of additional CMC III sensors is supported Racks 2200 mm high
Packs of	1 pc(s).
Net weight	195 kg
Gross weight	210 kg
Customs tariff number	84158200
ETIM 9	EC002515
ETIM 8	EC002515
ECLASS 8.0	27180712
Product description	SK LCP Rack CW, Air/water heat exchanger for rack cooling, Mounted on the side of the rack, flush, Cooling of one up to maximum two racks, Support of IT-compatible, "front-to-back" air routing,

# Approvals

Explanations	Declaration of conformity
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# Tender text

TopTherm LCP Rack CW, 3311.230 WHD (mm)300x2000x1200

TopTherm LCP RACK CW:

The design of the unit is optimised for use in data centres. The integrated air/water heat exchanger guarantees a cooling output of up to 30 kW, combined with standard server enclosure dimensions, the lowest possible weight and comprehensive possibilities for monitoring.

The air/water heat exchanger is mounted on the side of the rack.

LCP Rack CW offers enclosure-based cooling separate from the room air and is thus also able to reduce the noise level.

The unit is capable of providing cooling for either one or two server racks.

The hot server air is drawn off to the rear of the server rack. After cooling, it is expelled left and right in front of the 482.6 mm (19") level over the whole enclosure height and is thus made available to the IT equipment once more.

The use of an integrated EC fan module (cooling output up to 10 kW) achieves maximum efficiency and minimises the electrical energy consumption.

The installation of two further fan modules (accessories) enables the maximum cooling output to be raised to 30 kW.

This safeguards the value of an investment where the full cooling output is not yet required at the time of initial installation.

The unit is prepared for the incorporation of a maximum of six EC fan modules. A full fan configuration can thus also be realised to achieve redundancy or to minimise power consumption.

The flow characteristics of the heat exchanger have been optimised for the minimum possible pressure loss on the air side. This in turn minimises the energy consumption of the fans.

The high-performance heat exchanger guarantees maximum cooling output even at high water inlet temperatures,

enabling the proportion of operation in combination with indirect free cooling to be maximised and operating costs reduced accordingly.

The air/water heat exchanger and server rack remain separate from each other. This eliminates the risk of water penetrating into the server rack and improves the ease of installation and service.

Condensate and leakage management is integrated. The water connection can be realised optionally to the top or bottom by way of an accessory kit (1 1/2" thread).

Fast commissioning of the unit thanks to fast and simple air bleeding.

The standard integrated software/controller concept provides for automatic control of the specified server air intake temperature. The fan speed and cooling water flow rate are both infinitely variable, for precise matching to the power losses of the components installed in the IT rack.

The optimum operating point is thus achieved with minimum energy consumption and correspondingly reduced operating costs.

An intelligent sensor network monitors the air and water temperatures, as well as the water flow rate and leakage management.

The incorporation of three temperature sensors for the hot and cold air provides for redundancy. An integrated fail-safe mode, furthermore, ensures reliable cooling, even in case of failure of the electronics.

The monitoring and alarm management for all physical parameters is realised via SNMP and Ethernet. A BACnet link is possible as an option.

New control algorithms permit energy-efficient operation and take into account the demands of facility management.

To enable the displaying of all physical parameters, an optical colour touchscreen can be integrated into

the front of the unit.

The optimised layout provides for fast and simple maintenance and service for all relevant components. The fans can be exchanged at any time in a matter of seconds, also during operation (hot swapping). The temperature sensors in the water inlet/return are integrated into thermowells and can similarly be exchanged without interrupting operation.

Technical specifications: