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## SK 3311.560 Liquid Cooling Package

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FRIEDHELM LOH GROUP



# SK 3311.560 - Liquid Cooling Package LCP Inline CW, LCP Inline CWG

Bayed climate control designed for siting within a bayed enclosure suite. The hot air is extracted at the rear of the unit, cooled and then expelled forwards to the cold aisle.

## Features

Model No.	SK 3311.560
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>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>With redundant temperature sensor integrated at the air end as standard</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 hot air is drawn in from the room or hot aisle at the rear of the device and expelled at the front into the cold aisle after cooling.</p> <p>With this product, a raised floor is not necessary.</p>
Material	Sheet steel, spray-finished
Colour	RAL 7035

# Features

Options	Direct connection of additional CMC III sensors is supported Racks 2200 mm high
Design	Suite 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	40 kW/4 45 kW/5 55 kW/6
Air throughput (unimpeded air flow)	At 50 Hz: 8,000 m <sup>3</sup> /h At 60 Hz: 8,000 m <sup>3</sup> /h
Number of fan modules in supplied state	4
Dimensions	Width: 300 mm Height: 2,000 mm Depth: 1,200 mm
To fit enclosure type	TS IT
Installation in bayed enclosure suite	Set forward
Rated operating voltage	230 V, 1~, 50 Hz/60 Hz 400 V, 3~, 50 Hz/60 Hz
Max. cooling output	55 kW
Type of electrical connection	Connector
Duty cycle	100 %
Cooling medium	Water
EC fan	Yes
Fans may be exchanged with the system operational	Yes
Temperature control	Linear fan control Two-way control valve

# Features

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Water connections	DN 40 (G 1½" external thread)
Water inlet temperature	15 °C
Protection category to IEC 60 529	IP 20
Options	Direct connection of additional CMC III sensors is supported Racks 2200 mm high
Packs of	1 pc(s).
Net weight	220
Gross weight	236
EAN	4028177661912
ETIM 9	EC002515
ETIM 8	EC002515
ECLASS 8.0	27180712

# Approvals

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Explanations	Declaration of conformity
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# Tender text

TopTherm LCP Inline CW, 3311.560 WHD(mm)300x2000x1200

TopTherm LCP Inline 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 60 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 Inline draws the hot server air in via a perforated rear door.

The front of the unit protrudes approx. 200 mm in front of the server racks; the cooled air is expelled left and right, over the whole enclosure height, in front of the perforated doors of the server racks and is thus made available to the 482.6 mm (19") equipment once more.

The use of four integrated EC fan modules (cooling output up to 40 kW) achieves maximum efficiency and minimises the electrical energy consumption.

The unit is prepared for the incorporation of a maximum of six EC fan modules (cooling output up to 60 kW). For this reason it is possible to retrofit two additional fan modules up to full configuration and achieving the optimum cooling output.

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

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.

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: