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# SK 3312.570

## Liquid Cooling Package

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FRIEDHELM LOH GROUP



# SK 3312.570 - 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

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Model No.	SK 3312.570
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

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# 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	30 kW/4 32 kW/5 35 kW/6
Air throughput (unimpeded air flow)	At 50 Hz: 4,800 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
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	35 kW
Type of electrical connection	Connector
Duty cycle	100 %
Cooling medium	Water/glycol
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)

# Features

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Permissible operating pressure (p. max.)	10 bar
Water inlet temperature	15 °C
Protection category to IEC 60 529	IP 20
Optimized condensate management even at low water flow temperatures	Yes
Options	Direct connection of additional CMC III sensors is supported Racks 2200 mm high
Packs of	1 pc(s).
Net weight	241
Gross weight	260
EAN	4028177811614
ETIM 9	EC002515
ETIM 8	EC002515
ECLASS 8.0	27180712

# Approvals

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Certificates	EAC
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# Tender text

LCP Inline CW, protruding, 3312.570 WHD (mm) 300 x 2000 x 1200

LCP Inline CW, protruding, 3312.570:

Construction of the device optimised for data centres.

The integrated air/water heat exchanger ensures a cooling output of up to 35kW and has been specially designed for a high cooling output during operation with a water/glycol mixture.

Due to the design of the heat exchanger, the unit is also ideal for the downstream operation of a heat pump for heat recovery.

The heat exchanger is mounted laterally on the rack.

The LCP Inline sucks the warm server exhaust air through a perforated rear door.

The front section of the device protrudes approx. 200 mm in front of the server racks and blows the cooled air to the left and right in front of the perforated doors of the server racks, so that it is available for the 19" equipment again.

Maximum efficiency is achieved and the consumption of electrical energy is minimised by using four

built-in EC fan module (cooling output up to 30 kW).

The maximum cooling output of 35 kW is achieved by installing two additional fan modules (accessories).

This provides investment security if the full cooling output does not need to be used at the beginning of the installation.

The device is ready to take a maximum of six EC fan modules. A full fan configuration is therefore possible for reasons of redundancy or to minimise electrical power consumption.

The air/water heat exchanger and server rack are arranged in rows though access is separate in each case. This prevents water penetrating into the server rack and makes installation and service easier.

Access to the adjacent IT rack via the LCP is not possible.

A leak detection feature is integrated. A sensor installed in the condensate tray detects leaks, the main controller then issues an alarm message and/or interrupts the supply of cooling medium into the device.

A completely new and patented condensate management system means that it is also possible to operate the device with water flow temperatures below the dew point.

All the components in the condensate section are made of stainless steel

to prevent corrosion.

The water connection can be made optionally downwards or upwards by means of an accessory kit (1 1/2" external thread).

Short device commissioning time, thanks to simple and fast venting.

The fans can be replaced extremely quickly at any time.

A highly developed network-integration software concept for monitoring/setting all the technical parameters is integrated as default.

Should the controller fail, an integrated fail-safe operation mode ensures reliable cooling.

Up to eight additional sensors (temperature, humidity, etc.) can be connected.

Technical details:

Sensitive cooling output with four/five/six fans: 30/32/35 kW

Installed fans: 4 (max. 6 possible)

Volumetric air flow: max. 4,800 m<sup>3</sup>/h (3 fans)

Cooling output (four fans): 30 kW

Max. air inlet temperature 24°C

Inlet temperature: 15°C

Medium: Water/glycol (67/33)

Cooling medium throughput: approx. 50 l/min

Pressure loss: approx. 0,8 bar

Water connection: 1 1/2" external thread

Voltage: 230 V, 1~, 50/60 Hz, 400 V, 3~, N, 50/60 Hz

Max. connected electrical load: (three fan modules): 2.100W

Server air inlet temperature control via flow rate control and EC fan fitted with linear speed controller

Colour: RAL 7035

Dimensions: W x H x D: 300 x 2000 x 1200 mm

Weight as delivered: approx. 280 kg

Controllers/interfaces:

Network interface (RJ 45) Ethernet as per IEEE 802.3 via 10/100BaseT with PoE

Front USB interface: Mini USB for system setting

Rear USB interface: for USB stick, for data recording up to 32 GB

Front SD-HC slot: 1x up to 32 GB, for data recording

Alarm relay output: change-over contact for safety extra-low voltage (24 V DC, 1 A)

Digital inputs: 2x (terminal)

Protocols, Ethernet:

TCP/IPv4, TCP/IPv6, SNMPv1, SNMPv2c, SNMPv3, Telnet, SSH, (S)FTP, HTTP (S), NTP, DHCP, DNS, SMTP (S), Syslog

Eight additional sensors (temperature, humidity, etc.) can be connected.

#### Software

Control based on server inlet temperature

Automatic or manual control can be selected

Remote control via SNMP is possible

Water-side delta-T control for efficient chiller operation can be selected

The programming of logical links (tasks) to automate specific processes is possible

#### Special features:

Simple maintenance of the device from the front and rear, so that cable routes and aisle containments can be laid above the unit.

The fans can be replaced without using any tools

Integrated software with water-side delta-T control for efficient chiller operation

#### Optional:

Fan module for cooling power expansion: 3312.016

Touchscreen display, colour: 3311.030

Connection hose, bottom/top: 3311.040

Condensate pump 3312.012

Rear adaptor for LCP Inline CW 3311.080

LCP Inline CW filter mat holder 3311.042

Filter mat 3311.043