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## SK 3313.548 Liquid Cooling Package

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FRIEDHELM LOH GROUP



# SK 3313.548 - 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 3313.548
Design	CW
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>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>

# Features

Function principle	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. With this product, a raised floor is not necessary.
Material	Sheet steel, spray-finished
Surface finish	RAL 9005, finely textured matt
Colour	RAL 9005
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	18 kW/2 27 kW/3 30 kW/4
Total cooling output	18 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. 27 kW 30 kW
Air throughput (unimpeded air flow)	At 60 Hz: 5,200 m <sup>3</sup> /h
Dimensions	Width: 300 mm Height: 2,000 mm Depth: 1,200 mm
To fit enclosure type	VX IT TS IT PRO
Installation in bayed enclosure suite	Flush
Rated operating voltage	200 V - 240 V, 1~, 50 Hz/60 Hz 200 – 240 V AC
Max. cooling output	30 kW

# Features

Type of electrical connection	Connector
Duty cycle	100 %
Cooling medium	Water
Cooling medium note	Water quality according to unit specifications.
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)
Permissible operating pressure (p. max.)	10 bar
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	208 kg
Gross weight	218 kg
Customs tariff number	84186900
ETIM 9	EC002515
ETIM 8	EC002515
ECLASS 8.0	27180712
Product description	SK LCP Inline CW UL flush, based on VX IT, air/water heat exchanger for suite cooling, side mounting on the rack, flush, RAL 9005

# Approvals

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Approvals

UR + C-UR (recognized)

# Tender text

LCP Inline CW, flush, 3313.548:

Regulatory model no.: LCP N 7A1I43SC9D000

The design of the unit is optimised for use in data centres. The integrated air/water heat exchanger guarantees a sensitive cooling output of up to 30kW 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.

The flush LCP Inline unit extracts the hot air from the servers via a vented rear door and returns cooled air to the 19" equipment by blowing it out to the front via a vented front door and thus in front of the vented doors of the server rack.

The LCP Inline is aligned with the server rack at the front and the rear and thus forms a single flush surface.

The use of 4 integrated EC fan modules (cooling output up to 30 kW, 102364 BTU/h) achieves maximum efficiency and minimises the electrical energy consumption.

The air/water heat exchanger and server rack are incorporated into a single bayed suite, but nevertheless remain separate from each other. This eliminates the risk of water penetrating into the server rack and simplifies installation and service.

There is no access to the adjacent IT rack via the LCP.

Leakage monitoring is integrated. If a sensor installed in the condensate tray detects a leakage, the main controller issues an alarm message and/or interrupts the supply of cooling medium to the unit.

All components which may come into contact with condensate are made from stainless steel in order to avoid corrosion.

The unit was developed for the exclusive purpose of providing a sensitive cooling output.

An accessory kit enables the water connection to be realised either at the top or at the bottom (G 1½" external thread).

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

The fans can be replaced in a matter of seconds and without the need for tools or specially qualified personnel, also during continued operation.

An advanced software concept enabling network integration for the monitoring/setting of all technical parameters is implemented as a

standard feature.

An integrated fail-safe operating mode maintains reliable cooling in case of a controller failure.

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

Technical data:

Sensitive cooling output with 2/3/4 fans: 18/27/30 kW

Operating temperature range, ambient: 10 °C - 50 °C

Operating temperature range, cooling medium: 10 °C - 30 °C  
(non-condensing)

Lower inlet temperatures possible after consultation with the manufacturer.

Installed fans: 4 (max. 4 possible)

Air throughput: 5200 m<sup>3</sup>/h (4 fans)

Cooling output (4 fans): 30 kW (102364 BTU/h)

Air intake temperature: 24 °C

Water inlet temperature: 15 °C

Medium: Water or water/glycol mixture

Cooling medium throughput (0-100 l/min): approx. 60 l/min (pure water)

Pressure loss: approx. 0.6 bar

Water connection: G 1½" external thread

Voltage: 1~ 200-240V, AC50/60Hz, L1, (L2/N), PE

Max. connected load : 2150 W

Control according to server air intake temperature, realised by way of throughput regulation and EC fans with infinitely variable speed

Noise level at a distance of 1 m: max. 86 dB(A)

Colour:

Housing frame, roof plate, side panels and rear door: RAL 9005

Dimensions: WxHxD: 300 x 2000 x 1200 mm

Weight as delivered: approx. 220 kg

Controller/interfaces:

Network port (RJ 45): Ethernet to IEEE 802.3 via 10/100BaseT with PoE

Front USB port: Mini USB for system setup

Rear USB port: For USB thumb drive for data memory up to 32 GB

Front SD-HC slot: Data memory up to 32 GB

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

Digital inputs: 2x (terminal)

Protocols, Ethernet:

TCP/IPv4, TCP/IPv6, SNMPv1, SNMPv2c, SNMPv3, Modbus TCP, OPC ua, Telnet, SSH, (S)FTP, HTTP (S), NTP, DHCP, DNS, SMTP (S), Syslog  
Eight additional sensors (temperature, humidity, etc.) can be connected

## Software

Control according to server air intake temperature

Automatic or manual control can be selected

Remote control via SNMP, Modbus TCP, OPC ua is possible

Water-side  $\Delta T$  control can be selected for efficient chiller operation

Programming of logic operations (tasks) is possible in order to automate specific processes

Touch screen display, color, installed

The display shows the user all relevant operating parameters directly on the LCP.

This has the advantage of being able to see the status of the device briefly and at a glance, and to react as quickly as possible if necessary.

The following parameters can be read in different levels:

Display of the supplied cold air temperature to the 19" equipment.

Display of the discharged warm air temperature from the 19" equipment

Cooling capacity

Cooling water supply/return temperature

Cooling water flow rate

Position of the control valve

Overview of all parameters at a glance

Display of alarm and warning messages

Overview page with IP address of the device, software version and contact person (can be entered individually)

Change of the setpoint of the cold air temperature before the 19" level can be done on the display (locking possible if not desired)

4,3" display, 480 x 272 pixel

Resistive touch

type. 280 cd/m<sup>2</sup>

Operating temperature: -20°C to +70°C

Connecting cable

Special features:

Simple maintenance of the unit from the front and back, enabling cable

channels and aisle containment to be positioned above the unit.  
Tool-free fan replacement without interrupting operation  
For operation with a water inlet temperature below the dew point, the unit 3312.550 (300 x 2000 x 1200 mm) with innovative and patented condensate management is recommended.

Optional:

Connection hose, bottom/top: 3311.040

Condensate pump: 3312.012 (only for supply voltage 230-240 V)

Integrated droplet separator on request