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SK 3314.542

Liquid Cooling Package

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FRIEDHELM LOH GROUP

SK 3314.542 - Liquid Cooling Package LCP Inline CW/ 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 3314.542
Design	Suite cooling CW
Benefits	Maximum energy efficiency due to EC fan technology and IT-based control Minimal pressure loss at the air end, which in turn minimises the power consumption of the fans Control of the server air inlet temperature or (optionally) according to differential pressure With redundant temperature sensor integrated at the air end as standard Optimum adaptability due to dynamic, continuous control of the cold water volume flow By using high water inlet temperatures, the proportion of indirect free cooling is increased, which in turn reduces operating costs Modular fan units for a demand-based cooling output (fan replacement without tools, also possible during operation) Fan modules configurable as n+1 redundancy Standard 3-phase connection for electrical redundancy The UL variant includes a 1- or 2-phase fixed connection with additional cover as standard. The separation of cooling and enclosure prevents the ingress of water into the server enclosure A footprint of max. 0.36 m² for all cooling services Improved heat recovery, thanks to high water return temperatures when using LCP CW glycol variants, for example in combination with a heat pump Optimum access for maintenance and servicing from the front and rear

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	Enclosure: Sheet steel Front door: Aluminium, anodised/spray-finished
Colour	Enclosure: RAL 7035 Front door: Vertical sections, silver coloured and horizontal sections, RAL 9005
Options	Automatic server enclosure door opening Direct connection of an additional 16 CMC III sensors possible Racks in height 2200 mm, special colour Condensate management kit including baffle separator plus temperature and humidity sensor Display
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 (2 Ethernet ports for simpler cascading of up to 16 LCPs) Integration into RiZone OTM Suite (extended measuring and management functions, values can be transferred and visualised)
Note on Model No.	Optimised condensate management also at low water inlet temperatures, available upon request.
Total cooling output/Number of fan modules	18 kW/2 27 kW/3 30 kW/4
Total cooling output	18 kW 27 kW 30 kW
Air throughput (unimpeded air flow)	At 50 Hz: 5,000 m³/h
Number of fan modules in supplied state	2
Dimensions	Width: 300 mm Height: 2,200 mm Depth: 1,200 mm

Features

To fit enclosure type	VX IT TS IT
Installation in bayed enclosure suite	Flush
Rated operating voltage	200 V - 240 V, 1~, 50 Hz/60 Hz 346 V – 415 V, 3~, 50 Hz/60 Hz
Max. cooling output	30 kW
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 10B
Options	Automatic server enclosure door opening Direct connection of an additional 16 CMC III sensors possible Racks in height 2200 mm, special colour Condensate management kit including baffle separator plus temperature and humidity sensor Display
Packs of	1 pc(s).
Net weight	228.5 kg
Gross weight	238.5 kg
CRA risk class	Default (Low Risk)

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Features

Customs tariff number	84186900
Product description	LCP Inline CW, 30 kW, flush, RAL 7035, WHD: 300x2200x1200 mm

Approvals

Approvals	Cyber Security Certificate
Explanations	Declaration of conformity Declaration of conformity UK

Tender text

LCP Inline CW, flush, 3314.542:
Regulatory model no.: LCP G 8A1I23BC70000

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 30 kW 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 two integrated EC fan modules (cooling output up to 18 kW) achieves maximum efficiency and minimises the electrical energy consumption.
The cooling output can be raised to a maximum of 30 kW by installing two further fan modules (accessories).
This safeguards the value of an investment where the maximum cooling output is not yet required at the time of initial installation.
The unit is prepared for the incorporation of up to four EC fan modules.
Configuration with the maximum number of fans can thus also serve to achieve redundancy or to minimise electrical power 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 16 CMC III sensors (temperature/humidity etc.) can be connected to the CAN bus.

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: 2 (max. 4 possible)
Air throughput: 4,800 m³/h (3 fans)
Air throughput: 5,200 m³/h (4 fans)
Cooling output (three fans): 30 kW
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: 200-240 V AC, 1~ N, PE, 50/60 Hz; 346-415 V AC, 3N~, PE, 50/60 Hz
Max. connected load (4 fan modules): 2150 W
Server supply air temperature control via flow rate control and continuously variable speed EC fans
Noise level at a distance of 1 m: max. 86 dB(A)
Colour:
Enclosure frame, roof plate, side panels and rear door: RAL 7035
Aluminium front door, vertical, aluminium, silver-grey anodised
Aluminium front door, horizontal, aluminium, painted in RAL 9005
Aluminium front door, sheet steel panel, painted in RAL 9005

Handle and hinges: RAL 9005
Dimensions: WxHxD: 300 x 2200 x 1200 mm
Weight as delivered: approx. 240 kg

Controller/interfaces:
Rear network interfaces at the customer connection panel: 2 pcs.(RJ 45) switched, each 10/100/1000 MBit/s (16 IP addresses)
Front USB interfaces: USB 2.0 type C for serial configuration. Power supply for basic configurations, USB 2.0 type A for storage media, status LED, set and reset button
Rear CAN bus interface RJ 45: For connection of up to 16 CMC III sensors
Rear alarm relay output: changeover contact (NO/NC) (48V DC, 1A, 250 VAC, 2 A)
Digital input: 1 x (male)
Analog inputs: 2 x (4-20 mA connector)
RS232 for display connection
Supported protocols: IPv4 / IPv6<(>,<)>
integrated web server, HTTP, HTTPS, SSL, SSH<(>,<)>
NTP, TCP/IP v4 and v6, DHCP, DNS, NTP<(>,<)>
Syslog, SNMP v1, v2c and v3, Traps<(>,<)>
OPC-UA, Modbus/TCP<(>,<)>
SFTP (update / file transfer)<(>,<)>
e-mail dispatch (SMTP)
User management incl. rights management: Yes
LDAP(S) / Radius connection: Yes
USB port for firmware update / data logging function: Yes
Initial commissioning / mass configuration: Yes, via predefined CSV file

Software
Control according to server supply air temperature or optionally according to differential pressure
Automatic or manual control selectable
Remote control via SNMP, Modbus/TCP or OPC-UA possible
Setpoint setting by external temperature sensor selectable
Optional water-side delta T control for efficient chiller operation
Programming of logical links (tasks) for automation of specific processes possible
Measurements: Thermal and electrical power are measured continuously. Determination and display of current EER, ? fan operating hours, ? valve cycles and ? flow rate [l].
Integration in RiZone OT Suite: Extended measurement and management functions, values can be transferred and visualized

Special features:
Simple maintenance of the unit from the front and back, enabling cable channels and aisle containment to be positioned above the unit. 2 Ethernet interfaces, thus simplified cascading of up to 16 LCPs (saving of ports and switches)
Tool-free fan replacement without interrupting operation. Optional differential pressure control.
For operation with a water inlet temperature below the dew point, the unit 3314.550 (300 x 2000 x 1200 mm) with innovative and patented condensate management is recommended.

Optional:
Fan module for power extension: 3313.016
Touch screen display, colored: 3311.030
Connection hose, bottom/top: 3311.040
Condensate pump: 3312.012 or 3314.012
Side panel mounting: 3313.089
CMC III temperature sensor: 7030.110
CMC III differential pressure sensor: 7030.150
Connection cable for PSM rail 7856.025
Add-on LCP Flush to VX IT: 5301.310
Add-on LCP Flush to TS IT: 5301.312
Integrated droplet separator on request