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SK 3314.268

Liquid Cooling Package

State: 11.03.2026 (Source: [rittal.com/bg-bg](https://www.rittal.com/bg-bg))

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FRIEDHELM LOH GROUP



SK 3314.268 - Liquid Cooling Package LCP Rack CW/ 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 3314.268
Design	Rack 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 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
Material	Enclosure: Sheet steel Front door: Aluminium, anodised/spray-finished Sheet steel, spray-finished
Surface finish	RAL 9005, finely textured matt
Colour	Enclosure: RAL 7035 Front door: Vertical sections, silver coloured and horizontal sections, RAL 9005 RAL 9005
Options	Fully integrated fire detection and extinguisher system 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)
Total cooling output/Number of fan modules	53 kW/6
Air throughput (unimpeded air flow)	At 60 Hz: 8,000 m³/h
Number of fan modules in supplied state	6
Dimensions	Width: 300 mm Height: 2,000 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
Max. cooling output	53 kW
Type of electrical connection	Fixed connection with cover
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
Optimized condensate management even at low water flow temperatures	Yes
Options	Fully integrated fire detection and extinguisher system 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).

Features

Net weight	224 kg
Gross weight	237,5 kg
Customs tariff number	84186900
Product description	SK LCP rack CW, 53 kW, UL, WxHxD: 300x2000x1200 mm, RAL 9005, finely textured, matt

Approvals

Approvals	UL + C-UL (listed)
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Tender text

LCP Rack CW 3314.268: WHD - 300mm/12"x 2000mm/79"x 1200mm/48"
Regulatory Model No.: LCP G 8A3R43SC70000

The design of the row based cooling unit is optimized for use in data centers. The integrated air/water heat exchanger guarantees a sensible cooling output of 53 kW (Maximum) compatible with standard IT Equipment (ITE) server enclosure dimensions, the lowest possible weight and comprehensive system performance monitoring.

The air/water heat exchanger is mounted to the side of the IT equipment (ITE) enclosure (Sidecar).

The LCP Rack CW offers closed loop, cabinet-based independent of room climate control (CRAC/CRAH), to further reduce room ambient noise levels.

The unit is capable of cooling either one or two IT Equipment enclosures.

Maximum efficiency is achieved by using 6 built-in EC fan modules (cooling capacity up to 53 kW, 180844 BTU/h).

The air/water heat exchanger and ITE Enclosure 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 100% sensible cooling output.

An accessory kit enables top or bottom feed water connections (G 1½" external thread). A separate Coupling Kit (9977379) is provided to connect from BSPP threaded connections at the LCP (Supply and return) to NPT fittings from facility water piping.

An air bleed valve at the top rear of the heat exchanger provides rapid and simple air bleeding.

Hot swappable fans can be quickly replaced, without the need for tools

or specially qualified personnel, also during continued operation.

An advanced software OS, enabling network integration for the monitoring/setting of all technical parameters is provided 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 6 fans: 53 kW (180844 BTU/h)

Operating temperature range: 50-122 °F/10 - 50 °C

Operating temperature range, cooling medium: 50-86 °F/10 – 30 °C (non-condensing)

Lower inlet temperatures possible after consultation with the manufacturer.

Installed fans: 6

Air throughput (MAX): 4700cfm/8000 m³/h (6 fans)

Cooling output (six fans): 53 kW

Air intake temperature (EAT): 75 °F/24 °C

Water inlet temperature (EWT): 59 °F/15 °C

Medium: Water (or water/glycol mixture) (NOTE: Glycol mix will reduce capacity)

Cooling medium throughput (0-37GPM/0-140 LPM): approx. 33GPM/125 LPM (pure water)

Pressure loss: approx. 15PSI/1 bar

Water connection: G 1½" external thread

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

Max. connected load (6 fan modules): 3150 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. 88 dB(A)

Color: Enclosure frame, roof panel, side panels and rear door: RAL 9005 Black, fine structure matte

Dimensions: WxHxD: 12"/300mm x 79"/2000mm x 48"/1200mm

Configuration: Solid Doors Front & Rear, Solid roof with adjustable panel for hose, power, network connections

Weight as delivered: 573 Lbs/260 kg

Controller/Interfaces:

Rear network interfaces at the customer connection panel: 2 x RJ45 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, Σ fan operating hours, Σ valve cycles and Σ flow rate [l].

Touch Screen Display, Color, (Installed):

The front door mount LCD screen displays all relevant operating parameters directly on the LCP.

Individual icons display operational parameters and LCP status at a glance and, if necessary, the user can react as quickly as possible and

change parameters.

The following parameters can be read and changed at various levels:

- Display of the cold air temperature supplied to the 19" equipment
- Display of the hot air temperature discharged from the 19" equipment
- Display of the control mode (automatic, manual, remote)
- Configuration menu: Air Circuit, Coolant circuit, Condensate Management, Fan Registry
- Cooling water flow temperature/return temperature
- Cooling water flow
- Control valve position
- Display of pPUE, EER and Cap (cooling capacity)
- Overview of all parameters and the option to change them (protected with PIN)
- Display of alarm and warning messages
- Overview page with IP address of the device, software version and contact person etc. (can be entered individually)

Touch screen display, packaging unit consisting of:

- Color touch screen display, incl. mounting accessories
- 4.3" display, 480 x 272 pixels
- Resistive touch
- Brightness 200 cd/m²
- Storage temperature: -4 – 158°F/-20 - +70°C
- Ground cable

Special Features:

Easy maintenance of the device from the front and rear. Cable routing, power distribution and aisle containment can be installed above the LCP.

2 Ethernet interfaces, simplifying the cascading of up to 16 LCPs (saving on ports and switches)

Tool-free replacement of the fans during operation. Optional differential pressure control.

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

A droplet separator with patented condensate management is recommended for operation with water supply temperatures (EWT) below the dew point.

This option must be requested in advance.

Available expansion height to match adjacent taller (86"/2200mm – 47RU)

ITE enclosures (79"/2000mm LCP standard: 42 U)

Accessories:

North America Coupling Kit (BSPP to NPT): 9977379

Connection hose: Contact Rittal North America

Condensate pump: 3314.012

VX Side Wall Mounting Kit: 3313.089 (NOTE: 1 Kit required per sidewall)

CMC III temperature sensor: 7030110

CMC III differential pressure sensor: 7030150

Add-on LCP Flush to VX IT: 5301310

Add-on LCP Flush to TS IT: 5301312

Integrated droplet separator on request