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# SK 3312.230

## Liquid Cooling Package

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FRIEDHELM LOH GROUP

# SK 3312.230 - Liquid Cooling Package LCP Rack CW, LCP Rack 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 3312.230                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 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>Control of the server inlet temperature</p> <p>With redundant temperature sensor integrated at the air end as standard</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>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 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</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Material           | Sheet steel, spray-finished                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

# Features

|                                                   |                                                                                                                                                                                                                                                                                     |
|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Colour                                            | RAL 7035                                                                                                                                                                                                                                                                            |
| Options                                           | Fully integrated fire detection and extinguisher system<br>Automatic server enclosure door opening<br>Direct connection of additional CMC III sensors is supported<br>Racks 2200 mm high                                                                                            |
| Design                                            | Rack 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<br>Direct connection of the unit via SNMP over Ethernet<br>Integration into RiZone |
| Total cooling output/Number of fan modules        | 10 kW/1<br>20 kW/2<br>30 kW/3                                                                                                                                                                                                                                                       |
| Air throughput (unimpeded air flow)               | At 50 Hz: 4,800 m <sup>3</sup> /h                                                                                                                                                                                                                                                   |
| Number of fans                                    | 1                                                                                                                                                                                                                                                                                   |
| Dimensions                                        | Width: 300 mm<br>Height: 2,000 mm<br>Depth: 1,200 mm                                                                                                                                                                                                                                |
| To fit enclosure type                             | TS IT                                                                                                                                                                                                                                                                               |
| Installation in bayed enclosure suite             | Flush                                                                                                                                                                                                                                                                               |
| Rated operating voltage                           | 230 V, 1~, 50 Hz/60 Hz<br>400 V, 3~, 50 Hz/60 Hz                                                                                                                                                                                                                                    |
| Max. cooling output                               | 30 kW                                                                                                                                                                                                                                                                               |
| Type of electrical connection                     | Connector                                                                                                                                                                                                                                                                           |
| Duty cycle                                        | 100 %                                                                                                                                                                                                                                                                               |
| EC fan                                            | Yes                                                                                                                                                                                                                                                                                 |
| Fans may be exchanged with the system operational | Yes                                                                                                                                                                                                                                                                                 |

# Features

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|                                          |                                             |
|------------------------------------------|---------------------------------------------|
| Temperature control                      | Linear fan control<br>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                                       |
| Packs of                                 | 1 pc(s).                                    |
| Weight/pack                              | 260 kg                                      |
| Customs tariff number                    | 84195080                                    |
| EAN                                      | 4028177811669                               |
| ETIM 7.0                                 | EC002515                                    |
| ECLASS 8.0                               | 27180712                                    |

# Approvals

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|              |     |
|--------------|-----|
| Certificates | EAC |
|--------------|-----|

# Tender text

LCP Rack CW, 3312.230 WHD (mm) 300 x 2000 x 1200

LCP Rack CW, 3312.230:

Construction of the device optimised for data centres.

The integrated air/water heat exchanger ensures a cooling output of up to 30kW with standard server enclosure dimensions, the lowest possible weight and a comprehensive monitoring option.

The heat exchanger is mounted laterally on the rack.

The LCP Rack CW offers an enclosure-based and room air-independent cooling system that also reduces the noise level.

The device is able to cool either one or two server racks.

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

built-in EC fan module (cooling output up to 10 kW).

The maximum cooling output of 30 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.

The device has been designed solely to provide a sensitive cooling output.

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 at any time, very quickly and without using tools.

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 one/two/three fans: 10/20/30 kW

Installed fans: 1

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

Cooling output (three fans): 30 kW

Max. air inlet temperature 24°C

Inlet temperature: 15°C

Medium: water

Cooling medium throughput: approx. 60 l/min

Pressure loss: approx. 0.6 bar

Water connection: 1 ½" external thread

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

Max. connected electrical load: (three fan modules): 1050 W

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. 260 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

When operating with a water inlet temperature below the dew point, we recommend device 3312.250 (300 x 2000 x 1200 mm) with a novel and patented condensate management system.

Optional:

Fan module for cooling power expansion: 3312.016

Touchscreen display, colour: 3311.030

Connection hose, bottom/top: 3311.040

Condensate pump 3312.012

Integrated spray separator on request