www.kaltra.de

KALTRA
Kaltra Innovativtechnik GmbH
Max-Reger-Str. 44 · 90571 Schwaig · Deutschland

lambda

Outstanding energy efficiency with Λ-shaped vertical flow **MCHE**

41-135 kW

- **EER** up to 84.2 kW/kW
  provides leadership in energy efficiency
- **Λ-shaped** microchannel heat exchangers
  with vertical fluid flow and ultra low pressure manifolds
- **Designed** from the ground up
  with focusing on requirements of mission-critical tasks

Lambda CWU

Close control chilled water air conditioners for mission-critical applications

MICROCHANNEL · EC FANS · CHILLED WATER · FREECOOLING · DOWNFLOW

Available in 4 enclosure sizes in three performance grades, total 12 models

April 2016

lookside

Entirely innovative solution

Designed specially for mission-critical cooling applications, Lambda system provides precise thermal and humidity control and air filtration. Lambda lineup includes 3 performance grades with wide variety of redundancy options and management features, thus allows to build tailor-made cooling solutions suitable for such applications as data center whitespaces, telecommunication facilities, cleanrooms, production sites and process plants.

EC-Fans

Lambda features the new radial fans with unique blade geometry developed by Ziehl-Abegg offers more airflow by smaller size and wide efficiency range. In combination with EC-motors with integrated control functionality, communication interface and overtemperature protection, these fans provide unbeatable energy efficiency.

Fluid circuit

Fluid circuit equipped with smart balancing system based on continuous pressure drop measurements on return and bypass lines. Depending on these measurements, the unit control system adjusts two-way valves and maintains necessary cooling media flow thru the cooling coils, thus avoiding manual fluid circuit balancing.
Lambda's automatic balancing system fits ideally for variable-flow chilled water systems.
Fliud circuit with 3-way regulating valve for constant flow chilled water systems available as an option.

Microchannel heat exchangers

Lambda range of chilled water close control air conditioning units based on newly developed microchannel heat exchangers with advanced design that combines high performance flat tubes, state-of-the-art airside fins and ultra low pressure drop headers. The tubes have numerous miniports that enhance fluidside performance, while the airside achieves closer approach temperatures and, in combination with doubled area Λ-shaped heat exchanger design, reduces airside pressure drops drastically. The end result is incredible low fan power consumption: the maximum EER is 84.2, while the lineup's average EER is 64.4 (7/12°C)!
Compared to old-style fin/tube designs, microchannel heat exchangers helps to achieve up to 40% higher efficiency, cut down the weight for about 50% and use less coolant volume.

Lightweight, airtight construction

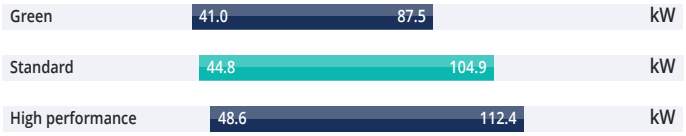
Extensive use of aluminuim components in Lambda design makes the whole construction lightweight, yet durable. We paid special attention to Lambda's enclosure air tightness to prevent leaks and maximize airside efficiency. The assembly of Lambda units has been engineered with attention to specific data center infrastructure requirements, and as a result, Lambda units can be easily integrated into the data center whitespace. Detachable facing panels allows easy and quick access to unit internals for check and maintenance procedures. Engineered from the ground up, Lambda units incorporate modular design that requires 30% less parts, allows quick manufacturing and assembly and reduces final cost.

Key facts & features

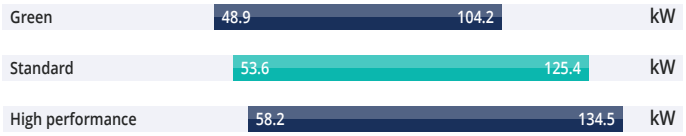
Lambda lineup offers three performance grades to design cooling solutions with increased focus either on energy efficiency, higher performance, or balance of both. In addition to vast array of options, this gives our customers the flexibility to design solutions, matching increasingly complex requirements as closely as possible.

Performance data

Fluid temperature: 7/12°C; Air inlet temperature: 24°C



Fluid temperature: 15/20°C; Air inlet temperature: 35°C



Enclosure sizes

Enclosure size	Width mm	Depth mm	Height mm
09	985	920	1950
12	1285	920	1950
15	1585	920	1950
18	1885	920	1950

Fans compartment sizes

Enclosure size	Width mm	Depth mm	Height mm
09	985	920	575
12	1285	920	575
15	1585	920	575
18	1885	920	575

Package & options

Features	CWU 09	CWU 12	CWU 15	CWU 18	Features	CWU 09	CWU 12	CWU 15	CWU 18
Fluidside									
2-way regulating valve + 2-way balancing valve	■	■	■	■	Pressure transmitters on fluid inlet/outlet	■	■	■	■
3-way regulating valve + manual balancing valve	□	□	□	□	Temperature probes on fluid inlet/outlet	■	■	■	■
2-way regulating valve w/o bypass	□	□	□	□	Test connections on fluid inlet/outlet	■	■	■	■
MCHE epoxy e-coating	□	□	□	□	Brazed connections	■	■	■	■
MCHE thermoguard	□	□	□	□	Grooved connections	□	□	□	□
Fluid leak detection	■	■	■	■	Threaded connections	□	□	□	□
Airside									
EC-fans w/ enh. functionality & MODBUS comm.	■	■	■	■	Diff. pressure switch	□	□	□	□
Air intake/discharge temperature probes	■	■	■	■	Temperature/humidity probe	□	□	□	□
Continuous temperature control	■	■	■	■	G4 air filtration w/ filter change switch	■	■	■	■
Continuous pressure control	□	□	□	□	F7 air filtration w/ filter change switch		□	□	□
Continuous airflow control	□	□	□	□	Smoke/fire detection	□	□	□	□
Power & Controls									
Dual power supply changeover switch	□	□	□	□	BMS connectivity	■	■	■	■
Controller backup power supply	□	□	□	□	SNMP connectivity	□	□	□	□
Phase monitoring relay	□	□	□	□	Energy management	□	□	□	□
General									
Steam humidification system		□	□	□	Motorized backdraft damper	□	□	□	□
Dehumidification system	□	□	□	□	Thermal/noise-reduction insulation	■	■	■	■
Multi-stage electric heater w/ thyristor control		□	□	□	Floorstand	□	□	□	□
Condensate dischagre system	□	□	□	□	Air intake plenum	□	□	□	□
Condensate tray leak detection	□	□	□	□	Fan compartment blind panelling	□	□	□	□

■ Standard feature
□ Option

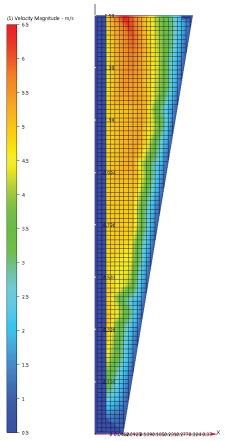
datasheet

Technical specifications

Model	Width mm	Depth mm	Height mm	Cooling capacity kW	EER kW/kW	Fans qty.	Air flow m³/h	Ext. static pressure Pa	Fans engaged power kW	Fluid flow m³/h	Coil fluidside pressure drop kPa	Heat transfer surface m²
Cooling media temperature: 7/12°C; Air inlet temperature: 24°C												
Performance grade: Green												
CWU 09G	985	920	1950	41.0	84.2	1	9000	20	0.49	7.1	27.6	2x9.00
CWU 12G	1285	920	1950	51.2	73.5	1	11000	20	0.70	8.9	23.6	2x12.89
CWU 15G	1585	920	1950	69.3	78.8	2	15000	20	0.88	12.0	25.2	2x33.08
CWU 18G	1885	920	1950	87.5	83.7	2	19000	20	1.05	15.1	25.5	2x40.86
Performance grade: Standard												
CWU 09S	985	920	1950	44.8	68.2	1	10000	20	0.66	7.7	30.3	2x9.00
CWU 12S	1285	920	1950	57.2	58.7	1	12500	20	0.98	9.9	26.7	2x12.89
CWU 15S	1585	920	1950	81.0	60.3	2	18000	20	1.34	14.0	29.7	2x33.08
CWU 18S	1885	920	1950	104.9	56.4	2	23500	20	1.86	18.1	30.9	2x40.86
Performance grade: High												
CWU 09H	985	920	1950	48.6	57.9	1	11000	20	0.84	8.4	33.0	2x9.00
CWU 12H	1285	920	1950	61.1	50.7	1	13500	20	1.21	10.6	28.6	2x12.89
CWU 15H	1585	920	1950	86.7	52.0	2	19500	20	1.67	15.0	32.0	2x33.08
CWU 18H	1885	920	1950	112.4	48.6	2	25500	20	2.31	19.4	33.3	2x40.86
Cooling media temperature: 15/20°C; Air inlet temperature: 35°C												
Performance grade: Green												
CWU 09G	985	920	1950	48.9	100.4	1	9000	20	0.49	8.3	26.3	2x9.00
CWU 12G	1285	920	1950	60.9	87.4	1	11000	20	0.70	10.4	22.7	2x12.89
CWU 15G	1585	920	1950	82.5	93.8	2	15000	20	0.88	14.1	24.0	2x33.08
CWU 18G	1885	920	1950	104.2	99.6	2	19000	20	1.05	17.8	24.3	2x40.86
Performance grade: Standard												
CWU 09S	985	920	1950	53.6	81.6	1	10000	20	0.66	9.2	29.1	2x9.00
CWU 12S	1285	920	1950	68.2	69.9	1	12500	20	0.98	11.6	25.5	2x12.89
CWU 15S	1585	920	1950	96.7	71.9	2	18000	20	1.34	16.5	28.4	2x33.08
CWU 18S	1885	920	1950	125.4	67.4	2	23500	20	1.86	21.4	29.6	2x40.86
Performance grade: High												
CWU 09H	985	920	1950	58.2	69.3	1	11000	20	0.84	10.0	31.7	2x9.00
CWU 12H	1285	920	1950	72.9	60.5	1	13500	20	1.21	12.5	27.4	2x12.89
CWU 15H	1585	920	1950	103.7	62.2	2	19500	20	1.67	17.7	30.5	2x33.08
CWU 18H	1885	920	1950	134.5	58.1	2	25500	20	2.31	22.6	31.5	2x40.86

Nomenclature

	CWU	18	G
LAMBDA	CWU		
Enclosure size		09/12/15/18	
Performance grade			Green (G) Standard (S) High performance (H)



The heart of Lambda units is microchannel heat exchangers combined in Λ-form. Unique geometry of ultra low pressure manifolds allows balanced cooling media distribution within the coils, while large heat-exchanging surface in combination with high-efficient fins enable low airside pressure drop, resulting in extraordinary performance.
The optimal heat exchangers design based on computational fluid dynamics (CFD) and field testing.

The development of Kaltra products and services is continuous and the information in this document may not be up to date. It is important to check the current position with Kaltra at the address stated below:

Kaltra Innovativtechnik GmbH
Max-Reger-Str. 44 · 90571 Schwaig · Deutschland

Tel.: +49 911 715 320 21
Fax: +49 911 253 312 70

E-mail: info@kaltra.de

24/7 Service & Support Hotline:
+49 152 343 915 17

Bayern Innovativ
Gesellschaft für Innovation und Wissenstransfer mbH