

# Lambda CW/CWU

## CHILLED WATER PRECISION AIR CONDITIONERS

- ▶ HIGH ENERGY EFFICIENCY WITH EER UP TO 84.2
- ▶ DESIGNED FOR MISSION-CRITICAL APPLICATIONS
- ▶ HIGH RELIABILITY WITH DUAL HEAT EXCHANGERS



# 40-135kW

24 MODELS IN THREE PERFORMANCE GRADES WITH BOTTOM OR UNDERFLOOR AIR DISCHARGE



CHILLED WATER



EC-FANS



MICROCHANNEL



DOWNFLOW

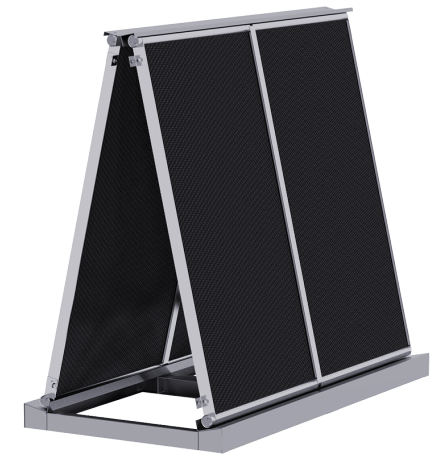


# Heat exchangers

## Dual independent microchannel coils with high heat transfer capabilities

Lambda units based on newly developed all-aluminium microchannel heat exchangers with an 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 waterside performance, while the airside achieves closer approach temperatures and, in combination with doubled area A-shaped heat exchanger design, reduces airside pressure drops drastically. The end result is incredibly low fan power consumption: the maximum EER is 84.2, while the group's average EER is as high as 59.6 (for 7/12°C water). Compared to old-style fin/tube designs, microchannel heat exchangers helps to achieve up to 40% higher efficiency, reduce the weight for about 50% and use less water volume.

Lambda CW/CWU family of precision air conditioners takes the full advantage of microchannel evaporators and offer an ultimate energy efficiency not found in any other air conditioning systems. During the design process, special attention has been paid to air distribution on the coil surface. An accurate airflow analysis by CFD simulation has been performed for the best possible aerodynamics, maximum airflow efficiency, and the lowest possible noise emissions level.



# Controls

## Centralized room thermal control

The control hub of Lambda CW/CWU is a sophisticated microprocessor with control logic specially developed for chilled water air conditioners. The customer can manage and optimize the unit's performance either locally or remotely. The software allows configuring multiple units simultaneously by replicating the configuration and parameters onto a group of networked units, thus reducing commissioning time. Users can apply various control strategies based on either continuous temperature control, or on-demand airflow control (optional), or constant pressure control by maintaining a pressure differential between the cold and hot aisles (optional).

# Frame and assembly

## Robust frame and lightweight, airtight enclosure

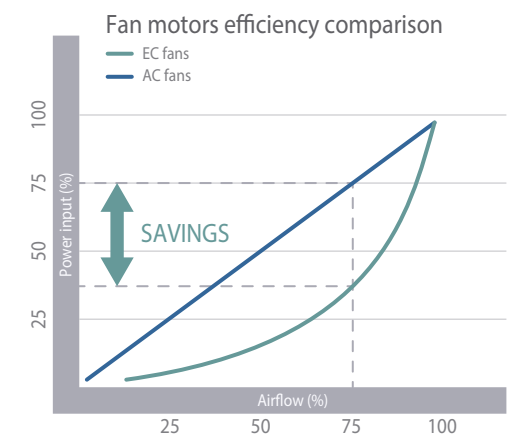
Extensive use of aluminium components in Lambda design makes the whole construction lightweight, yet durable. We paid special attention to Lambda's enclosure airtightness to prevent leaks and maximize airside efficiency. The assembly of Lambda units has been engineered with attention to specific data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



# EC-motor fans

## Highly efficient radial fans

New radial fans with unique blade geometry offer increased airflow with a reduced size and wide efficiency range, quiet operation and reduced weight. In combination with EC-motors with integrated control functionality, communication interface, and overtemperature protection, these fans provide unbeatable energy efficiency. Lambda CW/CWU features easily accessible fan compartment with noise insulation which makes it one of the quietest precision air conditioners on the market.



# Water circuit

## Precise flow control

Lambda's water 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 through the cooling coils, thus avoiding manual fluid circuit balancing. Automatic balancing system fits ideally with variable-flow chilled water systems. Fluid circuit with a 3-way regulating valve for constant flow chilled water systems available as an option.

**EER**  
UP TO  
**84.2**

DESIGNED ESPECIALLY FOR MISSION-CRITICAL CHILLED WATER APPLICATIONS, LAMBDA SERIES AIR CONDITIONERS PROVIDE PRECISE THERMAL AND HUMIDITY CONTROL AND AIR FILTRATION. THE LINEUP INCLUDES UNITS WITH THREE PERFORMANCE GRADES AND A WIDE VARIETY OF ACCESSORIES, REDUNDANCY OPTIONS, AND MANAGEMENT FEATURES, THUS ALLOWING TO BUILD TAILOR-MADE SYSTEMS BEST SUITABLE FOR APPLICATIONS AS DATA CENTER COOLING, TELECOMMUNICATION FACILITIES, CLEAN ROOMS, AND MORE.

# Technical Specifications

Lambda CW		CW 09 G	CW 12 G	CW 15 G	CW 18 G	CW 09 S	CW 12 S	CW 15 S	CW 18 S	CW 09 H	CW 12 H	CW 15 H	CW 18 H
Fluid: water 100%; Water inlet/outlet temperatures: 7/12°C; Air inlet temperature: 24°C													
Total cooling capacity	kW	39.6	49.7	67.1	84.7	43.3	55.3	78.2	101.3	46.9	59.0	83.6	108.3
Energy efficiency (EER)	kW/kW	67.9	65.4	68.5	70.2	57.4	50.8	51.4	48.7	47.4	44.1	45.0	41.1
Power input	kW	0.58	0.76	0.98	1.21	0.75	1.09	1.52	2.08	0.99	1.34	1.86	2.64
Fans		EC-motor radial fans											
Quantity		1	1	2	2	1	1	2	2	1	1	2	2
Airflow	m³/h	9000	11000	15000	19000	10000	12500	18000	23500	11000	13500	19500	25500
External static pressure	Pa	20	20	20	20	20	20	20	20	20	20	20	20
Heat exchangers		MCHE											
Quantity		2	2	2	2	2	2	2	2	2	2	2	2
Water flow	m³/h	6.8	8.6	11.7	14.6	7.5	9.5	13.5	17.5	8.1	10.2	14.5	18.7
Pressure drop	kPa	21.4	18.5	20.7	20.0	23.6	20.7	23.0	24.2	25.6	22.2	24.7	25.9
Heat transfer surface	m²	2x7.23	2x10.35	2x26.56	2x32.81	2x7.23	2x10.35	2x26.56	2x32.81	2x7.23	2x10.35	2x26.56	2x32.81
Dimensions													
Width	mm	985	1285	1585	1885	985	1285	1585	1885	985	1285	1585	1885
Depth	mm	920	920	920	920	920	920	920	920	920	920	920	920
Height	mm	2050	2050	2050	2050	2050	2050	2050	2050	2050	2050	2050	2050
Fluid: water 100%; Water inlet/outlet temperatures: 15/20°C; Air inlet temperature: 35°C													
Total cooling capacity	kW	47.5	59.3	80.2	101.3	51.9	66.2	93.8	121.5	56.3	70.8	100.4	130.2
Energy efficiency (EER)	kW/kW	81.5	78.0	81.8	84.0	68.8	60.8	61.1	58.4	56.9	52.9	54.1	49.4
Power input	kW	0.58	0.76	0.98	1.21	0.75	1.09	1.52	2.08	0.99	1.34	1.86	2.64
Fans		EC-motor radial fans											
Quantity		1	1	2	2	1	1	2	2	1	1	2	2
Airflow	m³/h	9000	11000	15000	19000	10000	12500	18000	23500	11000	13500	19500	25500
External static pressure	Pa	20	20	20	20	20	20	20	20	20	20	20	20
Heat exchangers		MCHE											
Quantity		2	2	2	2	2	2	2	2	2	2	2	2
Water flow	m³/h	8.1	10.1	13.7	17.3	8.9	11.3	16.0	20.7	9.6	12.1	17.2	22.2
Pressure drop	kPa	20.6	17.7	18.7	19.1	22.7	19.9	22.1	23.2	24.6	21.3	23.8	24.8
Heat transfer surface	m²	2x7.23	2x10.35	2x26.56	2x32.81	2x7.23	2x10.35	2x26.56	2x32.81	2x7.23	2x10.35	2x26.56	2x32.81
Dimensions													
Width	mm	985	1285	1585	1885	985	1285	1585	1885	985	1285	1585	1885
Depth	mm	920	920	920	920	920	920	920	920	920	920	920	920
Height	mm	2050	2050	2050	2050	2050	2050	2050	2050	2050	2050	2050	2050

# Package, options and accessories

Description			
General			
Steam humidification system	<input type="checkbox"/>	Condensate discharge pump	<input type="checkbox"/> Thermal and noise insulation <input checked="" type="checkbox"/>
Dehumidification system	<input type="checkbox"/>	Leakage detection	<input type="checkbox"/> Floor stand (CW models) <input type="checkbox"/>
Multi-stage electric heater w/ thyristor control	<input type="checkbox"/>	Motorized backdraft damper	<input type="checkbox"/> Air intake/discharge plenum <input type="checkbox"/>
Waterside			
2-way regulating + 2-way balancing valves	<input checked="" type="checkbox"/>	E-coated heat exchangers	<input type="checkbox"/> Threaded connections <input checked="" type="checkbox"/>
3-way regulating + manual balancing valves	<input type="checkbox"/>	Pressure transmitters on water inlet/outlet	<input checked="" type="checkbox"/> Grooved connections <input type="checkbox"/>
2-way regulating valve (no bypass)	<input type="checkbox"/>	Temperature probes on water inlet/outlet	<input checked="" type="checkbox"/> Brazed connections <input type="checkbox"/>
Airside			
EC fans w/ Modbus connectivity	<input checked="" type="checkbox"/>	Temperature probes on air intake/discharge	<input checked="" type="checkbox"/> Temperature probe (loose) <input type="checkbox"/>
Continuous temperature control	<input checked="" type="checkbox"/>	Differential pressure switch	<input type="checkbox"/> Humidity probe (loose) <input type="checkbox"/>
Continuous pressure control	<input type="checkbox"/>	Smoke detection	<input type="checkbox"/> Grade G4 air filtration w/ filter change switch <input checked="" type="checkbox"/>
Continuous airflow control	<input type="checkbox"/>	Fire detection	<input type="checkbox"/> Grade F7 air filtration w/ filter change switch <input type="checkbox"/>
Electric and controls			
Touch screen HMI	<input checked="" type="checkbox"/>	BMS connectivity	<input checked="" type="checkbox"/> Phase monitoring relay <input type="checkbox"/>
Controller backup power supply	<input type="checkbox"/>	SNMP connectivity	<input checked="" type="checkbox"/> Energy manager <input type="checkbox"/>
Dual power supply w/ changeover switch	<input type="checkbox"/>	GSM connectivity	<input checked="" type="checkbox"/> Remote monitoring software <input checked="" type="checkbox"/>

- ☒ Standard feature
- ☐ Optional feature

# Technical Specifications

Lambda CWU		CWU 09	CWU 12	CWU 15	CWU 18	CWU 09	CWU 12	CWU 15	CWU 18	CWU 09	CWU 12	CWU 15	CWU 18
		G	G	G	G	S	S	S	S	H	H	H	H
Fluid: water 100%; Water inlet/outlet temperatures: 7/12°C; Air inlet temperature: 24°C													
Total cooling capacity	kW	41.0	51.2	69.3	87.5	44.8	57.2	81.0	104.9	48.6	61.1	86.7	112.4
Energy efficiency (EER)	kW/kW	84.2	73.5	78.8	83.7	68.2	58.7	60.3	56.4	57.9	50.7	52.0	48.6
Power input	kW	0.49	0.70	0.88	1.05	0.66	0.98	1.34	1.86	0.84	1.21	1.67	2.31
Fans		EC-motor radial fans											
Quantity		1	1	2	2	1	1	2	2	1	1	2	2
Airflow	m³/h	9000	11000	15000	19000	10000	12500	18000	23500	11000	13500	19500	25500
External static pressure	Pa	20	20	20	20	20	20	20	20	20	20	20	20
Heat exchangers		MCHE											
Quantity		2	2	2	2	2	2	2	2	2	2	2	2
Water flow	m³/h	7.1	8.9	12.0	15.1	7.7	9.9	14.0	18.1	8.4	10.6	15.0	19.4
Pressure drop	kPa	27.6	23.6	25.2	25.5	30.3	26.7	29.7	30.9	33.0	28.6	32.0	33.3
Heat transfer surface	m²	2x9.00	2x12.89	2x33.08	2x40.86	2x9.00	2x12.89	2x33.08	2x40.86	2x9.00	2x12.89	2x33.08	2x40.86
Dimensions													
Width	mm	985	1285	1585	1885	985	1285	1585	1885	985	1285	1585	1885
Depth	mm	920	920	920	920	920	920	920	920	920	920	920	920
Height	mm	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Fluid: water 100%; Water inlet/outlet temperatures: 15/20°C; Air inlet temperature: 35°C													
Total cooling capacity	kW	48.9	60.9	82.5	104.2	53.6	68.2	96.7	125.4	58.2	72.9	103.7	134.5
Energy efficiency (EER)	kW/kW	100.4	87.4	93.8	99.6	81.6	69.9	71.9	67.4	69.3	60.5	62.2	58.1
Power input	kW	0.49	0.70	0.88	1.05	0.66	0.98	1.34	1.86	0.84	1.21	1.67	2.31
Fans		EC-motor radial fans											
Quantity		1	1	2	2	1	1	2	2	1	1	2	2
Airflow	m³/h	9000	11000	15000	19000	10000	12500	18000	23500	11000	13500	19500	25500
External static pressure	Pa	20	20	20	20	20	20	20	20	20	20	20	20
Heat exchangers		MCHE											
Quantity		2	2	2	2	2	2	2	2	2	2	2	2
Water flow	m³/h	8.3	10.4	14.1	17.8	9.2	11.6	16.5	21.4	10.0	12.5	17.7	22.6
Pressure drop	kPa	26.3	22.7	24.0	24.3	29.1	25.5	28.4	29.6	31.7	27.4	30.5	31.5
Heat transfer surface	m²	2x9.00	2x12.89	2x33.08	2x40.86	2x9.00	2x12.89	2x33.08	2x40.86	2x9.00	2x12.89	2x33.08	2x40.86
Dimensions													
Width	mm	985	1285	1585	1885	985	1285	1585	1885	985	1285	1585	1885
Depth	mm	920	920	920	920	920	920	920	920	920	920	920	920
Height	mm	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950

## Model identification

Lambda		CW	U	12	G	-	H	-	2B
Type	CW	Chilled water air conditioner							
Air discharge arrangement	-	Bottom air discharge							
	U	Underfloor air discharge							
Enclosure size		Enclosure width in dm							
Performance grade	G	Low-noise models							
	S	Standard performance							
	H	High performance							
Steam humidifier	H	Units with steam humidifier							
Water circuit arrangement	2B	Units with 2x 2-way valves and bypass							
	3B	Units with 3-way valve and bypass							
	2	Units with 1x 2-way valve							



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