

Lambda CW II-M

MODULAR PRECISION AIR CONDITIONERS

- ▶ MODULAR DESIGN FOR EFFICIENT AND EASY EXPANSION
- ▶ DESIGNED FOR IT COOLING APPLICATIONS
- ▶ HIGH-AVAILABILITY CONFIGURATION



55-335kW

40 MODELS IN STANDARD, ECONOMY, AND HIGH-PERFORMANCE CONFIGURATIONS WITH TOP OR BOTTOM AIR DISCHARGE



CHILLED WATER

EC-FANS

MICROCHANNEL

DOWNFLOW

UPFLOW



Heat Exchangers

Dual-evaporator design based on microchannel coil technology

The geometry of microchannel heat exchangers permits the installation of evaporators with double heat transfer surface compared to the convenient precision air conditioner with the same footprint. Larger heat exchanger surface leads to much higher energy efficiency based on lower airside pressure drops and reduced fan power consumption. Lambda 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 over the coil surface. An accurate airflow analysis by CFD simulation has been performed for the best possible aerodynamics, maximum airflow efficiency, and the lowest noise levels over the entire unit operating range.

Controls

Centralized thermal control

The control hub of Lambda CW II-M is a sophisticated microprocessor with control logic specially developed for chilled water air conditioners. Extended functionality provides full unit management either locally or remotely, enables energy use optimization, and allows configuring multiple units simultaneously by replicating the configuration and parameters onto a group of networked units. Users can apply various control strategies based on either constant temperature control, or on-demand airflow control, or constant pressure control by maintaining a pressure differential between the cold and hot aisles.

Intelligent Fans

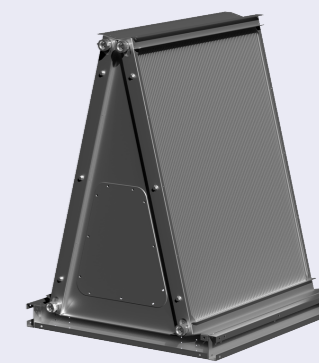
EC-driven radial with Modbus control

Lambda CW II-M system features backward-curved radial fans with unique blade geometry offering increased airflow by smaller impeller size, wider efficiency range, and low sound output. Fan drives use commutation electronics to sense the rotor position and adjust supply current, thus eliminating the need for mechanical brushes to deliver current to the motor windings. Elimination of physical contact reduces internal wear within the fan motor and significantly increases reliability. The key advantage of using EC-driven fans is substantial energy savings - of up to 35%. Furthermore, electronically-commutated motors feature overtemperature protection, are maintenance-free and have an extended lifetime in comparison to any other motor types. The fans fully comply with the requirements of the Energy-related Products 2015 Directive.

Flow Regulation

Precise water 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.



LAMBDA CW II-M PRECISION AIR CONDITIONING SYSTEM TAKES ADVANTAGE OF CHILLED WATER AS A SOURCE FOR COOLING IT EQUIPMENT IN SMALL AND MEDIUM-SIZED DATA CENTERS. THIS FLEXIBLE, COST-EFFICIENT SOLUTION OFFERS HIGH REDUNDANCY, TOLERANCE TO FAULTS, AND ENERGY-EFFICIENT COOLING.

THE MODULAR NATURE OF THE LAMBDA CW II-M SYSTEM ENABLES EASY AND COST-EFFECTIVE EXPANSION IN LINE WITH THE GROWTH OF COOLING DEMAND. INITIAL SYSTEM CONFIGURATION INCLUDES ONE OR TWO - FOR SYSTEM REDUNDANCY - ACTIVE MODULES TO CONTROL THERMAL PARAMETERS OF THE COOLED SPACE, WHILE PASSIVE MODULES CAN BE ADDED AS NECESSARY - EVEN WITHOUT INTERRUPTION IN COOLING.

SPACE-SAVING DESIGN PROVIDES THE HIGHEST PERFORMANCE-TO-FOOTPRINT RATIO FOR APPLICATIONS AND EASY SERVICING WITH FRONTAL ACCESS TO ALL SYSTEM COMPONENTS. NUMEROUS OPTIONALS AND CONTROL FUNCTIONS ARE AVAILABLE FOR TAILORING THE SYSTEM TO INDIVIDUAL REQUIREMENTS.

Frame size		F1.0	F1.5	F2.0	F2.5	F3.0	F3.5	F4.0	F4.5
Performance									
Cooling capacity	kW	55+95		115+165		170+250		230+335	
Model									
Dimensions									
Width	mm	925	1340	1730	2145	2535	2950	3340	3755
Depth	mm	925	925	925	925	925	925	925	925
Height	mm	2000	2000	2000	2000	2000	2000	2000	2000

EER
UP TO
51.1

Technical Specifications

Performance Data - Downflow Air Discharge

Lambda CW II-M		D60 2/1	D90 3/1	D120 4/2	D150 5/2	D180 6/3	D210 7/3	D240 8/4	D270 9/4	D80 2/1	D160 4/2	D240 6/3	D320 8/4
Performance grade		S	S	S	S	S	S	S	S	H	H	H	H
Frame size		F1.0	F1.5	F2.0	F2.5	F3.0	F3.5	F4.0	F4.5	F1.0	F2.0	F3.0	F4.0
Fluid: water 100%; Water inlet/outlet temperatures: 15/20°C; Air inlet temperature: 35°C													
Total cooling capacity	kW	64.1	96.0	128.2	160.2	192.3	224.4	256.4	289.0	83.0	166.0	249.0	332.0
Energy efficiency (EER)	kW/kW	38.04	22.18	38.04	28.86	38.04	31.55	38.04	33.07	18.47	18.47	18.47	18.47
Power input	kW	1.69	4.33	3.37	5.55	5.06	7.11	6.74	8.74	4.49	8.99	13.48	17.98
Fans EC-motor radial fans													
Quantity		1	1	2	2	3	3	4	4	1	2	3	4
Airflow	m³/h	14000	21000	28000	35000	42000	49000	56000	63000	20000	40000	60000	80000
External static pressure	Pa	0	0	0	0	0	0	0	0	0	0	0	0
Heat exchangers MCHE													
Quantity		2	3	4	5	6	7	8	9	2	4	6	8
Water flow	m³/h	11.1	16.5	22.2	27.6	33.3	38.7	44.4	50.1	14.4	22.2	33.3	44.4
Pressure drop	kPa	23.7	26.5	27.0	27.5	28.0	28.5	29.0	29.5	31.0	36.5	42.0	47.5
Discharge air temperature	°C	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7
Dimensions													
Width	mm	925	1340	1730	2145	2535	2950	3340	3755	925	1730	2535	3340
Depth	mm	925	925	925	925	925	925	925	925	925	925	925	925
Height	mm	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Cooling density													
Capacity/footprint ratio	kW/m²	75	77	80	81	82	82	83	83	97	104	106	107

Performance Data - Upflow Air Discharge

Lambda CW II-M		U60 2/1	U90 3/1	U120 4/2	U150 5/2	U180 6/3	U210 7/3	U240 8/4	U270 9/4	U80 2/1	U160 4/2	U240 6/3	U320 8/4
Performance grade		S	S	S	S	S	S	S	S	H	H	H	H
Frame size		F1.0	F1.5	F2.0	F2.5	F3.0	F3.5	F4.0	F4.5	F1.0	F2.0	F3.0	F4.0
Fluid: water 100%; Water inlet/outlet temperatures: 15/20°C; Air inlet temperature: 35°C													
Total cooling capacity	kW	64.1	96.0	128.2	160.2	192.3	224.4	256.4	289.0	83.0	166.0	249.0	332.0
Energy efficiency (EER)	kW/kW	38.04	22.18	38.04	28.86	38.04	31.55	38.04	33.07	18.47	18.47	18.47	18.47
Power input	kW	1.69	4.33	3.37	5.55	5.06	7.11	6.74	8.74	4.49	8.99	13.48	17.98
Fans EC-motor radial fans													
Quantity		1	1	2	2	3	3	4	4	1	2	3	4
Airflow	m³/h	14000	21000	28000	35000	42000	49000	56000	63000	20000	40000	60000	80000
External static pressure	Pa	0	0	0	0	0	0	0	0	0	0	0	0
Heat exchangers MCHE													
Quantity		2	3	4	5	6	7	8	9	2	4	6	8
Water flow	m³/h	11.1	16.5	22.2	27.6	33.3	38.7	44.4	50.1	14.4	22.2	33.3	44.4
Pressure drop	kPa	23.7	26.5	27.0	27.5	28.0	28.5	29.0	29.5	31.0	36.5	42.0	47.5
Discharge air temperature	°C	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7
Dimensions													
Width	mm	925	1340	1730	2145	2535	2950	3340	3755	925	1730	2535	3340
Depth	mm	925	925	925	925	925	925	925	925	925	925	925	925
Height	mm	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Cooling density													
Capacity/footprint ratio	kW/m²	75	77	80	81	82	82	83	83	97	104	106	107

Identification

Lambda II-M		CW	D	240	8 / 4	S
Type	CW	Chilled water air conditioner				
Air discharge arrangement	U	Upflow configuration				
	D	Downflow configuration				
Capacity		Nominal cooling capacity in kW				
Number of evaporator coils						
Number of fans						
Performance grade	S	Standard performance				
	H	High performance				

Technical Specifications

Performance Data - Downflow Air Discharge

Lambda CW II-M		D50 2/1	D80 3/1	D110 4/2	D140 5/2	D170 6/3	D200 7/3	D230 8/4	D260 9/4
Performance grade		E	E	E	E	E	E	E	E
Frame size		F1.0	F1.5	F2.0	F2.5	F3.0	F3.5	F4.0	F4.5
Fluid: water 100%; Water inlet/outlet temperatures: 15/20°C; Air inlet temperature: 35°C									
Total cooling capacity	kW	57.2	85.5	114.4	142.7	171.6	199.9	228.8	257.1
Energy efficiency (EER)	kW/kW	51.07	30.43	51.07	39.20	51.07	42.99	51.07	44.95
Power input	kW	1.12	2.81	2.24	3.64	3.36	4.65	4.48	5.72
Fans EC-motor radial fans									
Quantity		1	1	2	2	3	3	4	4
Airflow	m ³ /h	12000	18000	24000	30000	36000	42000	48000	54000
External static pressure	Pa	0	0	0	0	0	0	0	0
Heat exchangers MCHE									
Quantity		2	3	4	5	6	7	8	9
Water flow	m ³ /h	9.9	14.7	19.8	24.6	29.7	34.5	39.6	44.4
Pressure drop	kPa	19.9	22.7	23.2	23.7	24.2	24.7	25.2	25.7
Discharge air temperature	°C	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2
Dimensions									
Width	mm	925	1340	1730	2145	2535	2950	3340	3755
Depth	mm	925	925	925	925	925	925	925	925
Height	mm	2000	2000	2000	2000	2000	2000	2000	2000
Cooling density									
Capacity/footprint ratio	kW/m ²	67	69	71	72	73	73	74	74

Performance Data - Upflow Air Discharge

Lambda CW II-M		U50 2/1	U80 3/1	U110 4/2	U140 5/2	U170 6/3	U200 7/3	U230 8/4	U260 9/4
Performance grade		E	E	E	E	E	E	E	E
Frame size		F1.0	F1.5	F2.0	F2.5	F3.0	F3.5	F4.0	F4.5
Fluid: water 100%; Water inlet/outlet temperatures: 15/20°C; Air inlet temperature: 35°C									
Total cooling capacity	kW	57.2	85.5	114.4	142.7	171.6	199.9	228.8	257.1
Energy efficiency (EER)	kW/kW	51.07	30.43	51.07	39.20	51.07	42.99	51.07	44.95
Power input	kW	1.12	2.81	2.24	3.64	3.36	4.65	4.48	5.72
Fans EC-motor radial fans									
Quantity		1	1	2	2	3	3	4	4
Airflow	m ³ /h	12000	18000	24000	30000	36000	42000	48000	54000
External static pressure	Pa	0	0	0	0	0	0	0	0
Heat exchangers MCHE									
Quantity		2	3	4	5	6	7	8	9
Water flow	m ³ /h	9.9	14.7	19.8	24.6	29.7	34.5	39.6	44.4
Pressure drop	kPa	19.9	22.7	23.2	23.7	24.2	24.7	25.2	25.7
Discharge air temperature	°C	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2
Dimensions									
Width	mm	925	1340	1730	2145	2535	2950	3340	3755
Depth	mm	925	925	925	925	925	925	925	925
Height	mm	2000	2000	2000	2000	2000	2000	2000	2000
Cooling density									
Capacity/footprint ratio	kW/m ²	67	69	71	72	73	73	74	74

Operating Limits

Indoor air conditions		
Minimum air dry bulb temperature	°C	18.0
Maximum air dry bulb temperature	°C	45.0
Minimum air wet bulb temperature	°C	13.5
Maximum air wet bulb temperature	°C	27.0
Minimum relative humidity	%	20
Maximum relative humidity	%	60

Chilled water circuit		
Minimum chilled water inlet temperature	°C	5.0
Maximum chilled water inlet temperature	°C	25.0
Minimum temperature difference	°C	3.0
Maximum temperature difference	°C	10.0
Pressure drop range on circuit	kPa	5-180
Maximum operating pressure	bar	10

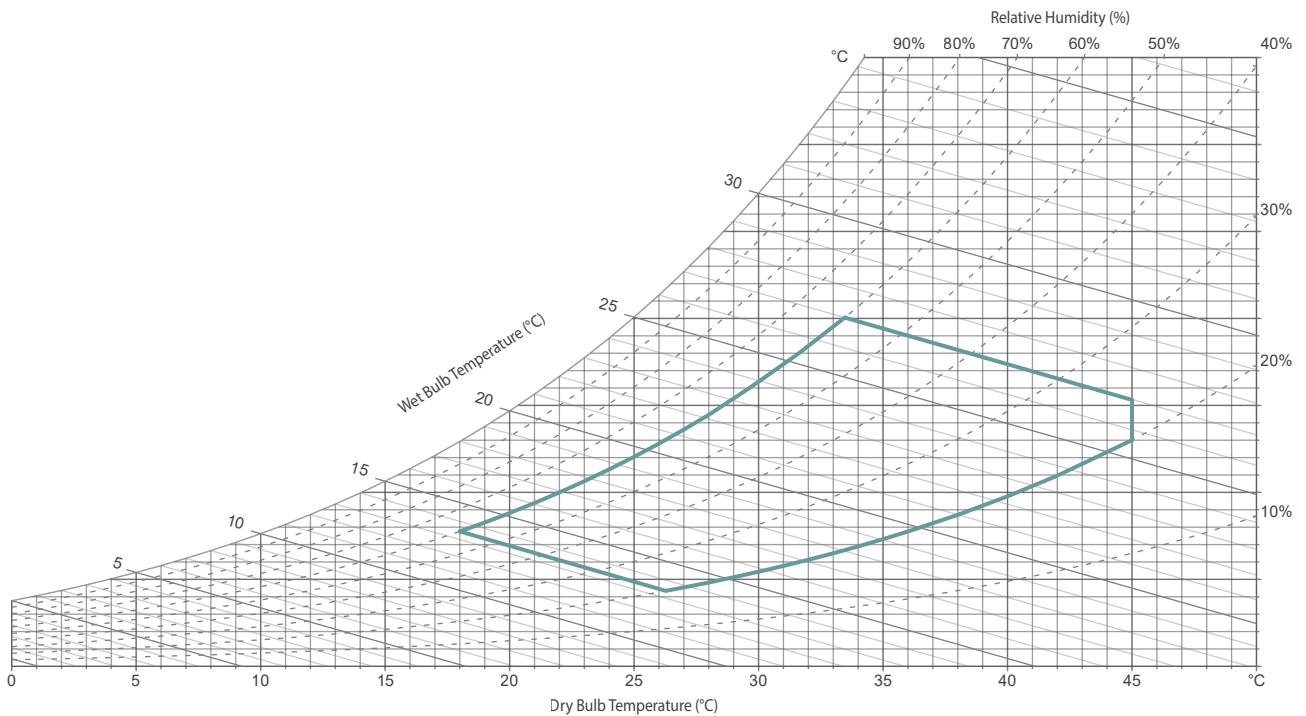
Technical specifications

Package, Options, Accessories

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

Standard feature
 Optional feature

Operating Envelope



The development of Kaltra products and services is continuous and the information in this document may not be up to date. Please check the current position with Kaltra.