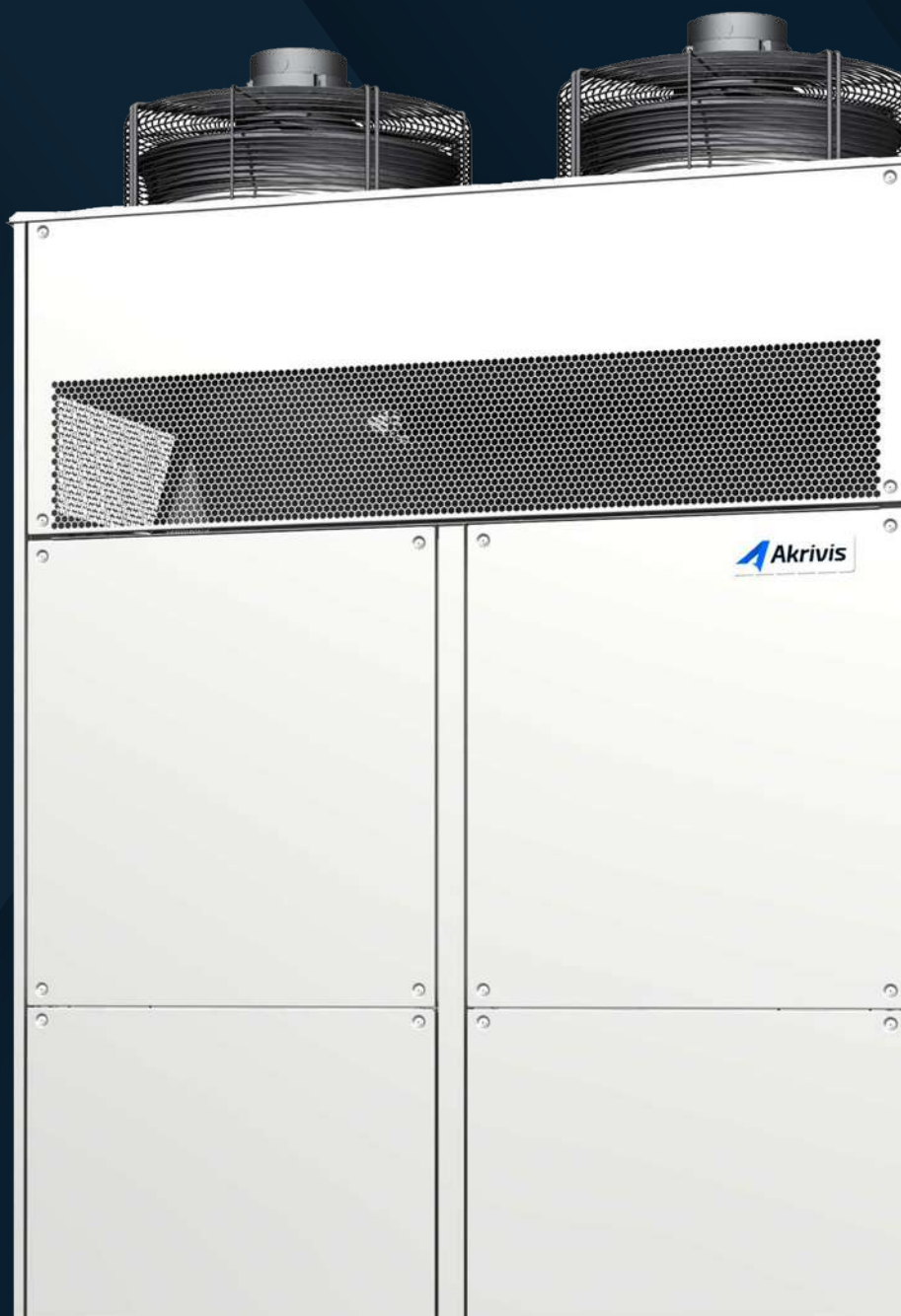
EC SERIES | 5-25 KW | 400 VAC - 50/60HZ | EMEA EDITION

Mission Critical Cooling for Modular Data Centres

PRECISION COOLING SYSTEM



Akrivis

EC Series | 5-25kW

- Unrestricted flange-to-flange mounting creates highest cooling density in the market, ideal for PMDC applications
- Air-mixing chamber and unique dual fan control logic allows for safe free-cooling in extreme cold conditions
- Unique, independent fans for free-cooling and mechanical cooling modes eliminates critical cooling failure point
- Developed for seamless outdoor installation
- Wall-mount Environmental Control Systems
- Achieve PUE as low as 1.04
- Up to 85% reduction in OPEX costs
- Up to 80% reduction in CO2 emissions
- Fully packaged “plug & play” solution
- Independent Fresh Air Free Cooling with 100% mechanical cooling backup
- Designed for low GWP refrigerant
- Integrated microprocessor control system
- Fully BMS comms compatible
- Remote monitoring & logging

ECO-FRIENDLY REFRIGERANT

GREEN TECHNOLOGY

EDGE COMPUTING

FREE COOLING

PLUG & PLAY

LOW FOOTPRINT

Precision Cooling System

INTELLIGENT, COMPACT, EFFICIENT

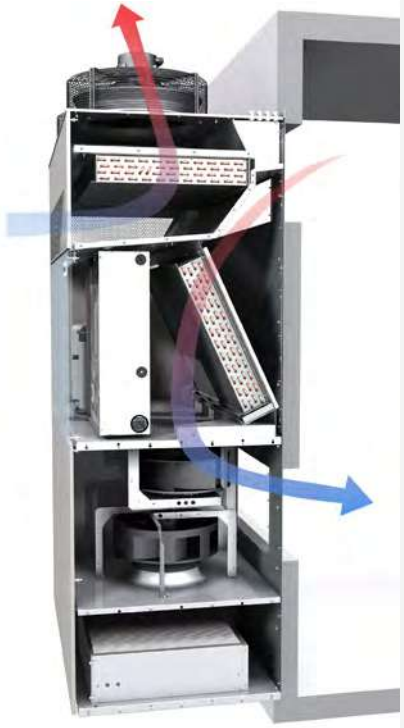
The EC Series is a fully packaged, outdoor cooling unit which has been developed to cool critical environments such as high-density modular data centres, telecom shelters, re-locatable equipment buildings (REB) and mobile base stations.

Created to avoid using indoor space, EC units are designed for seamless outdoor installation. The system offers an ideal solution for both new installation and retrofit.

The Akrivis system of fully independent dual cooling modes has been developed to maximize energy-efficient free cooling operation while keeping mechanical cooling to an absolute minimum.

MECHANICAL COOLING

When ambient temperatures are above setpoint, the Akrivis EC Series intelligent controls deactivate free cooling and enables mechanical DX cooling. The DX systems utilizes a variable speed compressor, which ensures accurate temperature control while offering best in class efficiencies, reducing power consumption.



INDEPENDENT FREE COOLING

The Akrivis EC cooling series contains a fully independent 48VDC free cooling system that provides free cooling when ambient conditions allow, without the need for dampers. Our intelligent controls utilize EC fans which modulate depending on the IT load and the ambient temperature. This ensures mechanical cooling is kept to a minimum and energy savings are maximized.

The Internally mounted free-cooling fan is protected from exposure to extreme cold temperatures. Coupled with Akrivis' unique air-mixing logic, this design feature permits free-cooling operations over a wide range of ambient conditions while able to maintain minimum air circulation requirements.

FEATURES

Standard Features

- 3 base sizes
- Capacities ranging from 5-25kW
- Single & Dual circuits
- PUE as low as 1.04
- Dual cooling options for low energy consumption:
  - Free cooling
  - Mechanical cooling
- Direct driven scroll compressor
- Fully serviceable from the front, no side access required
- Low GWP Refrigerant
- Independent 48V Free Cooling fan offering optional backup during mains power failure
- EC fans allowing for precise air flow rates and over 70% more efficient than AC fans
- Wide operating range -40°C to +50°C
- G4 /MERV8 filtration with pressure monitoring
- High quality powder coat paint in customer specific RAL colours
- Multiple units on site are networked to optimize load sharing and duty/assist operations
- Remote monitoring and on-site controller access via Ethernet
- A single touch screen display can be used to manage the various controllers connected to the same local network

Optional Features

- Electric heating
- Inverter driven compressor
- User specific controls
- Sand trap louvres
- F7/MERV13 filtration to meet ASHRAE TC9 & ISO 14644-1
- VOC sensors
- Ultra-Fine Particle Sensors
- Site supervision BOSS System
- Centralized data collection
- Mobile-ready local supervisor

Technical Data – 400 VAC - 50/60HZ EMEA Edition

EC10		
Free Cooling Capacity[1]	kW	10
Max Free Cooling Airflow	m³/H	3500
DX Cooling Capacity (Total)[2]	kW	10
SHR	-	1
Dx Cooling Airflow	m³/H	3000
Refrigerant	-	R410A
Sound Pressure Level[3]	dB (A)	64.9
Dimensions (WxDxH)[4]	mm	780x800x2540
Service Clearance	mm	1000mm at front, 400mm below
Gross Weight	kg	240
Full Load Amps (@400/3/50)[5]	Amps	11A

PERFORMANCE DATA			
AMBIENT TEMP	ROOM AIR TEMP		
°C	24°C	27°C	30°C
	KW	KW	KW
35°C	8.0	8.5	10.0
40°C	7.0	7.5	8.5
45°C	6.5	7.25	8.0
50°C	6.0	7.0	7.5

All data is nominal based on typical running conditions.

Specific regional data available on request.

1. FC Capacity @ 10°C delta T, rated with two-stage filtration: G4 Coarse 70%, F7 ePM1 55%.
2. DX Capacity @ 30°C indoor setpoint, 35°C outdoor ambient
3. Measured at 2m from the unit, in free field conditions
4. Width is measured to outside of fixing flanges
5. FLA stated for cooling only configurations, additional heat elements may increase FLA.

EC10-2		
Free Cooling Capacity[1]	kW	20
Max Free Cooling Airflow	m³/H	7000
DX Cooling Capacity (Total)[2]	kW	20
SHR	-	1
Dx Cooling Airflow	m³/H	6000
Refrigerant	-	R410A
Sound Pressure Level[3]	dB (A)	67.9
Dimensions (WxDxH)[4]	mm	1480x800x2540
Service Clearance	mm	1000mm at front, 400mm below
Gross Weight	kg	450
Full Load Amps (@400/3/50)[5]	Amps	2 x 11A

PERFORMANCE DATA			
AMBIENT TEMP	ROOM AIR TEMP		
°C	24°C	27°C	30°C
	KW	KW	KW
35°C	16.0	17.0	20.0
40°C	14.0	15.0	17.0
45°C	13.0	14.5	16.0
50°C	12.0	14.0	15.0

All data is nominal based on typical running conditions.

Specific regional data available on request.

1. FC Capacity @ 10°C delta T, rated with two-stage filtration: G4 Coarse 70%, F7 ePM1 55%.
2. DX Capacity @ 30°C indoor setpoint, 35°C outdoor ambient
3. Measured at 2m from the unit, in free field conditions
4. Width is measured to outside of fixing flanges
5. FLA stated for cooling only configurations, additional heat elements may increase FLA

EC18

Free Cooling Capacity[1]	kW	20
Max Free Cooling Airflow	m^3/H	7000
DX Cooling Capacity (Total)[2]	kW	18
SHR	-	1
Dx Cooling Airflow	m^3/H	5500
Refrigerant	-	R410A
Sound Pressure Level[3]	dB (A)	67.9
Dimensions (WxDxH)[4]	mm	1180x800x2540
Service Clearance	mm	1000mm at front, 400mm below
Gross Weight	kg	400
Full Load Amps (@400/3/50)[5]	Amps	22A

PERFORMANCE DATA

AMBIENT TEMP	ROOM AIR TEMP		
°C	24°C	27°C	30°C
	KW	KW	KW
35°C	15.5	17.0	18.0
40°C	14.0	15.5	16.0
45°C	12.5	14.0	14.5
50°C	11.0	12.5	13.0

All data is nominal based on typical running conditions.

Specific regional data available on request.

1. FC Capacity @ 10°C delta T, rated with two-stage filtration: G4 Coarse 70%, F7 ePM1 55%.
2. DX Capacity @ 30°C indoor setpoint, 35°C outdoor ambient
3. Measured at 2m from the unit, in free field conditions
4. Width is measured to outside of fixing flanges
5. FLA stated for cooling only configurations, additional heat elements may increase FLA.

EC25

Free Cooling Capacity[1]	kW	20
Max Free Cooling Airflow	m^3/H	7000
DX Cooling Capacity (Total)[2]	kW	25
SHR	-	1
Dx Cooling Airflow	m^3/H	6500
Refrigerant	-	R410A
Sound Pressure Level[3]	dB (A)	67.9
Dimensions (WxDxH)[4]	mm	1480x800x2540
Service Clearance	mm	1000mm at front, 400mm below
Gross Weight	kg	460
Full Load Amps (@400/3/50)[5]	Amps	24A

PERFORMANCE DATA

AMBIENT TEMP	ROOM AIR TEMP		
°C	24°C	27°C	30°C
	KW	KW	KW
35°C	20.0	23.5	25.0
40°C	18.0	22.0	23.0
45°C	16.5	20.5	21.5
50°C	15.5	18.0	19.0

All data is nominal based on typical running conditions.

Specific regional data available on request.

1. FC Capacity @ 10°C delta T, rated with two-stage filtration: G4 Coarse 70%, F7 ePM1 55%.
2. DX Capacity @ 30°C indoor setpoint, 35°C outdoor ambient
3. Measured at 2m from the unit, in free field conditions
4. Width is measured to outside of fixing flanges
5. FLA stated for cooling only configurations, additional heat elements may increase FLA.

TECHNICAL SPECIFICATIONS

Technical Data – 400 VAC - 50/60HZ EMEA Edition

		EC10	EC10-2	EC18	EC25
Free Cooling Capacity[1]	kW	10.0	20.0	20.0	20.0
Max Free Cooling Airflow	m^3/H	3500	7000	7000	7000
DX Cooling Capacity (Total)[2]	kW	10.0	20.0	18.0	25.0
SHR	-	1	1	1	1
Dx Cooling Airflow	m^3/H	3000	6000	5500	6500
Refrigerant	-	R410A	R410A	R410A	R410A
Sound Pressure Level[3]	dB (A)	64.9	67.9	67.9	67.9
Dimensions (WxDxH)[4]	mm	780x800x2540	1480x800x2540	1180x800x2540	1480x800x2540
Service Clearance	mm	1000 at front, 400 below	1000 at front, 400 below	1000 at front, 400 below	1000 at front, 400 below
Gross Weight	kg	240	450	400	460
Full Load Amps (@400/3/50)[5]	Amps	11A	2 x 11A	22A	24A

1. FC Capacity @ 10°C delta T, rated with two-stage filtration: G4 Coarse 70%, F7 ePM1 55%.
2. DX Capacity @ 30°C indoor setpoint, 35°C outdoor ambient
3. Measured at 2m from the unit, in free field conditions
4. Width is measured to outside of fixing flanges
5. FLA stated for cooling only configurations, additional heat elements may increase FLA.

PERFORMANCE DATA

ROOM AIR TEMPERATURE		AMBIENT TEMPERATURE			
MODEL	°C	35°C	40°C	45°C	50°C
		KW	KW	KW	KW
EC10	24°C	8.0	7.0	6.5	6.0
	27°C	8.5	7.5	7.25	7.0
	30°C	10.0	8.5	8.0	7.5
EC10-2	24°C	16.0	14.0	13.0	12.0
	27°C	17.0	15.0	14.5	14.0
	30°C	20.0	17.0	16.0	15.0
EC18	24°C	15.5	14.0	12.5	11.0
	27°C	17.0	15.5	14.0	12.5
	30°C	18.0	16.0	14.5	13.0
EC25	24°C	20.0	18.0	16.5	15.5
	27°C	23.5	22.0	20.5	18.0
	30°C	25.0	23.0	21.5	19.0

All data is nominal based on typical running conditions.

Specific regional data available on request.

Intelligent Controls

Tailor made software for each solution

Utilizing both state-of-the-art controllers and bespoke software controllers makes local and remote connectivity a key innovation of the EC Series. Real time monitoring of operating conditions on installed units, recording of data in abnormal situations, maintenance management, setting desired temperature are just some of the features available at any time and from anywhere.

Controls Features

- Integrated Ethernet & USB Interfaces
- BMS & Field Bus connectivity
- Open protocols: SNMP, Modbus®, BACnet™, HTTP, FTP
- Flexible I/O
- Remote connectivity
- Centralized data collection
- Wide range of HMI user interfaces
- Mobile-ready local supervisor

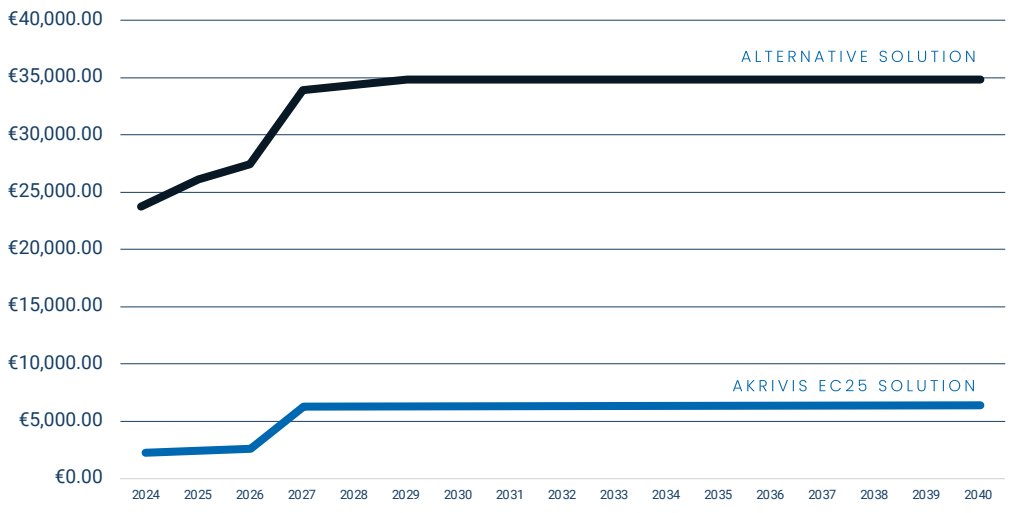
Reduce OPEX costs by up to 85%

By utilizing free cooling and state of the art variable speed mechanical cooling to ensure maximum efficiency, the EC Series AC unit can reduce data center operational costs by up to 85% over the life of the system. This also leads to a reduction in carbon emissions by up to 80%, the equivalent of 50,000 trees per system. This leads to a PUE as low as 1.04, making the EC Series cooling system one of the most efficient on the market. The below table shows a comparison between an Akrivis 25kW system and a competitor system based on a varying IT load over a 16-year period.

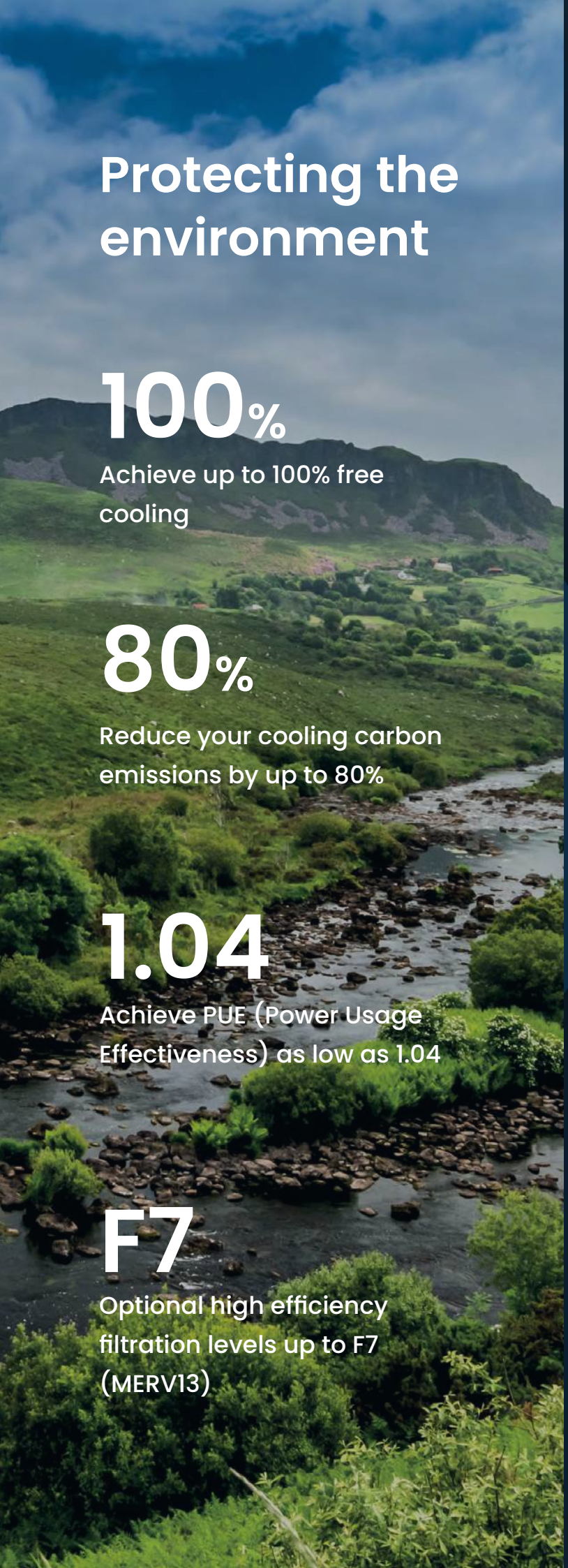
PUE as low as 1.04, making the EC Series cooling system one of the most efficient on the market.

Comparison of OPEX Costs over system lifespan

AKRIVIS EC25 VS ALTERNATIVE SOLUTION



TOTAL COST		
	ALTERNATIVE SOLUTION	€467,159.84
	AKRIVIS EC25 SOLUTION	€96,100.20



Protecting the environment

100%

Achieve up to 100% free cooling

80%

Reduce your cooling carbon emissions by up to 80%

1.04

Achieve PUE (Power Usage Effectiveness) as low as 1.04

F7

Optional high efficiency filtration levels up to F7 (MERV13)

Mission Critical Air Cooling

With a low carbon footprint

Akrivis solutions cool equipment and deliver optimum conditions in modular data centres. Specialist units, customised to your needs, delivering exceptional performance, outstanding reliability, and ultra-low energy usage.

PLUG & PLAY

Low-energy, air cooling in all types of modular data centres.

ENERGY EFFICIENCY

Enabling distributed, modular, stable, low-energy infrastructure.

MINIMIZED ENVIRONMENTAL IMPACT

The EC Series uses the latest technologies to reduce the impact on the environment. ebm-papst EC fans ensure maximum potential savings and maintain low noise levels for use in residential areas. Our inverter-driven compressors are extremely energy efficient in partial load mode and guarantee a constant supply temperature compared to fixed speed systems.

SPEND UP TO 100% OF THE YEAR FREE COOLING

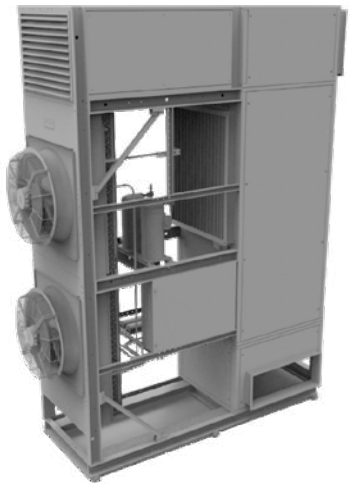
Specifically designed to reduce carbon footprints and minimize energy consumption, the EC Series utilizes free cooling as much as possible. As technologies develop and higher room set point temperatures are permitted, the savings can grow exponentially. The table below outlines the potential free cooling available across several cities based on an array of setpoints.

SETPOINT	FREE COOLING AVAILABLE	LONDON	FRANKFURT	RIYADH	NAIROBI	VANCOUVER	NEW YORK
22°C 71.6°F	UP TO 17°C UP TO 62.6°F	7250.98 (83%)	7643.88 (87%)	1976.69 (23%)	3414.14 (39%)	7477.29 (85%)	6333.12 (72%)
25°C 77°F	UP TO 20°C UP TO 68°F	8196.77 (94%)	8236.37 (94%)	2763.92 (32%)	5615.35 (64%)	8273.97 (94%)	7099.61 (81%)
27°C 80.6°F	UP TO 22°C UP TO 71.6°F	8493.64 (97%)	8466.81 (97%)	3278.14 (37%)	6693.44 (76%)	8572.45 (98%)	7642.14 (87%)
29°C 84.2°F	UP TO 24°C UP TO 75.2°F	8641.23 (99%)	8606.35 (98%)	3799.89 (43%)	7650.79 (87%)	8700.97 (99%)	8096.16 (92%)
31°C 87.8°F	UP TO 26°C UP TO 78.8°F	8716.82 (99%)	8690.49 (99%)	4373.73 (50%)	8367.77 (96%)	8744 (99%)	8340.8 (95%)
33°C 91.4°F	UP TO 28°C UP TO 82.4°F	8748.15 (99%)	8731.6 (99%)	5011.05 (57%)	8688.53 (99%)	8756.96 (99%)	8575.76 (98%)
35°C 95°F	UP TO 30°C UP TO 86°F	8756.6 (99%)	8751.09 (100%)	5657.08 (65%)	8755.82 (100%)	8759.2 (100%)	8675.66 (99%)

Explore the Full Akrivis Critical Cooling Range at akrivis.com

AKRIVIS EC SERIES | 5-25KW

Packaged Units for Modular Data Centres and other Mission Critical Applications



AKRIVIS EC SERIES | 25-50KW

Packaged units for Modular Data Centres and other Mission Critical Applications

AKRIVIS DC800 SERIES

CRAC & CRAH units for Data Centres and other Mission Critical Applications

AKRIVIS FC SERIES

Free Cooling Unit for Telecom and other Mission Critical Applications

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