

“
Simple, reliable,
efficient heat pump!
Equipped with CS controller”



Heating nominal capacity : 4 to 15kW
 Cooling nominal capacity : 3 to 16kW



Cooling or heating



* except three-phase models

USE

The **EREBA** air-to-water heat pump is designed for heating and cooling applications in new, existing individual homes and small businesses models.

When installed alone, EREBA is compatible with low to medium temperature emitters (underfloor heating, fan coil units, water cassettes, radiators, mixed installations, etc.). EREBA is also compatible with medium to high temperature emitters for boiler backup operation.

The EREBA heat pump is installed outside in an open area, ideally as close as possible to the boiler room.

Each device is tested in the factory and delivered ready for operation..

RANGE

EREBA's range is composed by 7 single-phase and three-phase reversible models.

Operation in cooling mode with an outdoor temperature of 0°C to 46°C.

Operation in heating mode with an outdoor temperature of -20°C to +30°C.

If the heat pump is the only source of heat:

Below this temperature, heating must be provided by a separate heating source or an additional electrical supply

If the heat pump is used for backup operation:

Operates down to the equilibrium point (temperature below which the heat pump can no longer keep up with heating needs). Below this point, the heat pump and boiler run alternately (heat pump OR boiler).

CONFORMITY

Low Voltage Directive 2006/95/EC

EMC : ElectroMagnetic Compatibility 2004/108/EC

PED : Pressure Equipment Directive 97/23/EC

WEEE : Waste Electrical & Electronic Equipment 2012/19/EU

RoHS : Restriction of Hazardous Substances Directive 2011/65/UE

The new reversible Ereba air-to-water heat pumps with built-in inverter technology were designed for residential and light commercial applications. They offer excellent energy efficiency values, exceptionally quiet operation and meet the most stringent operating temperature demands.

The units integrate the latest technological innovations: **Non-ozone depleting refrigerant R410A**, DC inverter twin-rotary compressors, low-noise fan and microprocessor control.

With exceptional energy efficiency values the inverter mini-chillers qualify for local tax reductions and incentive plans in all EU countries.



Ecodesign is the European Directive that sets mandatory requirements for Energy related Products (ErP) to improve their energy efficiency. CIAT supports initiatives to reduce the environmental impact of its products.

Features

- Wide operating range in both heating and cooling mode offering high performance in a wide temperature range.
- DC inverter twin-rotary compressors with Pulse Amplitude Modulation (PAM) and Pulse Width Modulation (PWM) for enhanced reliability, low energy consumption and smooth vibration-free operation under all operating conditions.
- Variable-speed fans with an innovative patented fan blade shape ensure improved air distribution at exceptionally low noise levels
- Pre-set or customised selection of the appropriate climate curve for stable output capacity to match the heat load.
- Output to link and integrate the unit with existing heat sources or a back-up heating source (single or dual-energy approach) for increased savings and optimum comfort all year round.
- Connection and control of an external dehumidifier through the programmable thermostat CS1 to monitor and regulate the relative humidity.
- Input and output connections to the three-way valve for connection to a domestic hot-water buffer-tank. Provides increased flexibility for any application.
- Leaving water temperature up to 60°C for radiator and domestic hot water applications.
- Plug-and-play control for failsafe serviceability.
- Alarm input to force the unit off for increased safety, and matching with external control systems or safety devices.
- Output to operate an additional water pump for increased installation flexibility.

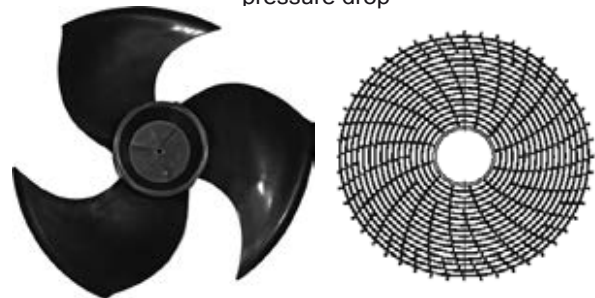
Advanced performance

- Ereba have an extremely high energy efficiency ratio in both cooling and heating mode, ensuring significant energy savings. Large, efficient coils and optimised circuiting ensure that all combinations meet the European tax rebate efficiency targets. Efficiency at part load conditions (seasonal energy efficiency) reaches the highest level in the industry.
- Year-round comfort - the advanced technology used in Ereba heat pump condensing units provides optimised comfort levels for the end users, both in terms of water temperature control and quietness. The desired temperature is quickly reached and effectively maintained without fluctuations. Ereba offers optimised individual comfort levels - both in winter and in summer.
- Wide temperature operating range: Ereba can operate efficiently in extreme temperature conditions. Ereba can work at low-ambient conditions in cooling mode (down to 0°C and up to 46°C outside temperature). For end user comfort the units also operate down to -20°C outdoor temperature in heating mode, and in the summer season they produce hot water up to 60°C at up to 30°C outside temperature for domestic hot water applications.

Advanced technology

- Electronic system management: several sensors placed in key positions in the refrigerant circuit electronically detect the operational system status. Two micro-controllers receive the input from the sensors, manages them using advanced control algorithms and optimises the refrigerant flow and the functioning of all core components - the compressor, fan motors and the pulse modulation valve.
- The pulse modulation valve, a bi-flow electronic expansion device, optimises the refrigerant amount in the circuit and the superheat, preventing refrigerant migration back into the compressor. This device further enhances high system performance and reliability.
- The air management system, consisting of the propeller fan, orifice and air discharge grille guarantees minimised noise levels.

New patented fan blade shape and grille profile with low pressure drop



Environmental care

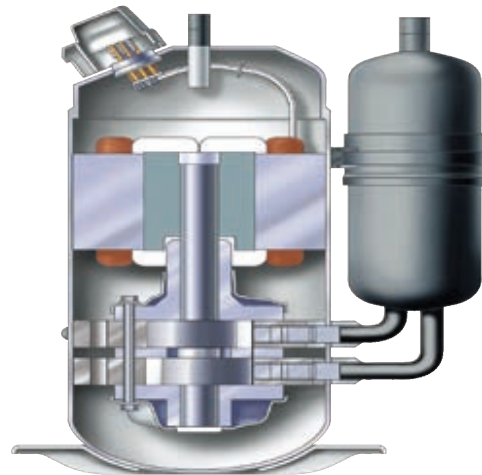
- Non-ozone depleting refrigerant R410A.
- Chlorine-free refrigerant of the HFC group with zero ozone depletion potential.
- High-density refrigerant, therefore less refrigerant required.
- Very efficient - gives an increased energy efficiency ratio (EER).
- The components of Ereba are free of any hazardous substances.
- The new packaging ensures high protection during transport and handling and is 100% recyclable.

Fast and simple installation and service

- Easy access to all internal components: simply undo three screws to remove the complete front panel to access the refrigerant piping connections, control box and electrical connections, as well as the compressor and other key parts.
- Advanced circuit design and component selection has resulted in a compact unit with an exceptionally small footprint that is easy to transport even through narrow doors.
- Reduced operating weight and a handle on the unit panels to facilitate transport.
- No additional buffer tank required, simplifying and speeding up the installation process.
- 3 bar pressure relief valve as standard.
- Two or three-litre internal expansion tank.
- High-temperature refrigerant protection.
- Water flow switch to ensure that the circuits contain enough water to operate correctly.
- Various power cable outlet options: pre-punched holes in the cabinet panels permit cable exit on the side, front or rear.
- Dealer service tool connection kit includes the software and connections to monitor the operating parameters from a personal computer, giving an easy-to-read display with visual graphs and statistics indicators.
- Ereba are equipped with 1 inch gas MPT water connections.
- The integrated hydronic module reduces space requirements and simplifies the installation. Only the power and the water supply and return piping need to be connected.
- Condensate drain piping connection to the unit includes a leak-proof pipe rubber joint.
- Specially shaped anchorage feet ensure correct and safe unit fixing to the foundation.
- The CS1 programmable thermostat periodically runs system checks to monitor and assess the unit operating parameters (standard parameters are 45°C LWT in heating and 7°C LWT in cooling). If a problem occurs, troubleshooting fault codes and messages help the service technician to identify the fault.

DC inverter twin-rotary compressor

- Advanced technology providing maximum energy-efficiency with high capacity available at peak conditions and optimised efficiency at low and mid compressor speeds. Ereba heat pump DC inverter uses Intelligent Power Drive Unit (IPDU) hybrid inverter technology, combining two electronic management logics: Pulse Amplitude Modulation (PAM) and Pulse Width Modulation (PWM) for optimised compressor operation in all conditions, minimised temperature fluctuations, and providing perfect individual comfort control with significantly reduced energy consumption:
 - PAM: pulse amplitude modulation of the direct current controls the compressor at maximum load conditions (start-up and peak load), increasing the voltage at fixed frequency. The compressor works at high speed to rapidly achieve the desired temperature.
 - PWM: pulse width modulation of the direct current controls the compressor at partial load conditions, adjusting the frequency at fixed voltage. The compressor speed is fine-tuned and the system provides high-level comfort (no temperature fluctuations) at exceptionally efficient working conditions.
- Compressor frequency is increased continuously up to the maximum level. This ensures that there are no current draw peaks in the start-up phase and safe connection to a single-phase power supply even in large-capacity systems. The maximum operating current of Ereba is below 7.2 A (systems up to 4 kW) and below 23 A for larger systems (12 kW). Inverter ramp-up speed makes soft starts unnecessary and ensures immediate maximum power.
- The two rotary compression cylinders, offset from each other by 180°, and the DC brushless motor with the shaft in perfect balance ensure reduced vibration and noise, even at very low operating speeds. This results in an extremely wide range between minimum and maximum capacity with continuous operation, guaranteeing that the system is always optimised and provides maximum comfort at exceptionally high efficiency levels.
- Twin-rotary cylinders, low vibrations and low load to the shaft ensure highest compressor reliability and a long trouble-free operating life.
- All DC brushless twin-rotary compressors are equipped with crankcase heaters as standard.
- A double compressor shield for acoustic insulation further reduces noise levels.



Superior reliability

- Exceptional endurance tests:
 - All the units are tested at various stages on the production line for circuit leakage, electrical compliance, water and refrigerant pressures.
 - End-of-line test of all unit operating parameters
 - Corrosion resistance test
 - Accelerated ageing test on critical components and complete assembled units, simulating thousands of hours of continuous operation.
 - Packaging crash test to ensure that the units are adequately protected against accidental shocks
 - Extensive field and site testing.

Economical operation

- Increased energy efficiency at part load:
 - The exceptionally high energy efficiency of Ereba is the result of a long qualification and optimisation process.
 - Use of ambient air as primary source of energy in domestic heating applications significantly reduces the overall energy consumption and minimises CO2 emissions.
 - Night mode operation at reduced compressor speed, results in low-noise operation and a significant reduction in energy consumption.
 - Easy-to-set and economical silent mode, reduces the compressor speed.
 - R-410A refrigerant is easier to use than other refrigerant blends.

GMC board

- The new GMC controller is specifically developed for Ereba, and incorporates new control algorithms. It features customised or pre-defined climate curves, domestic hot water control, a night-time noise reduction function, a defrost/alarm output signal, an external heat source, a pump block prevention function, freeze protection and compressor operation management.

Corrosion-resistant casing



User interface

- Ereba can use the following user interfaces:
 - The CS1 programmable thermostat with easy-to-read LCD screen. It provides enhanced control capability for maximised performance, reliability and indoor comfort and has extended programming features such as weekly scheduling and dehumidifier/humidifier signals. The sleek contemporary design blends in with any room decor.
 - The Ereba remote controller



Programmable thermostat

PHYSICAL DATA

Ereba			4H	6H	8H	12H	15H	12HT	15HT	
Cooling										
Full load performances*	C1	Nominal capacity	kW	3.33	4.73	5.84	10.24	13.04	10.20	13.00
	C1	EER	kW / kW	3.02	3.00	2.98	2.96	2.95	3.00	2.91
	C1	Eurovent class cooling		B	B	B	B	B	B	B
	C2	Nominal capacity	kW	4.93	7.04	7.84	13.54	16.04	13.50	16.00
	C2	EER	kW / kW	4.20	3.70	3.99	3.66	3.85	4.15	3.81
	C2	Eurovent class cooling		A	B	A	B	A	A	A
Seasonal efficiency**		ESEER	kW / kW	4.36	4.51	4.15	4.22	4.31	4.4	4.31
Heating										
Full load performances*	H1	Nominal capacity	kW	4.1	5.8	7.2	11.9	14.46	12	15
	H1	COP	kW / kW	4.06	4.2	3.91	3.91	4.09	4.3	4.2
	H2	Nominal capacity	kW	3.9	5.8	7.4	12.95	13.96	11.2	14.5
	H2	COP	kW / kW	3.2	3.01	3.16	3.01	3.23	3.35	3.3
	H3	Nominal capacity	kW	4.1	5.4	6.7	11.5	11.66	11.43	12.17
	H3	COP	kW / kW	2.72	2.58	2.3	2.48	2.82	3.12	2.98
Seasonal efficiency**	H1	SCOP	kW / kW	3.73	3.6	3.03	3.19	3.61	3.78	3.68
	H1	η_s	%	146	141	118	125	141	148	144
	H1	P_{rated}	kW	3.83	4.92	4.56	10	10.75	9.76	11.12
	H1	Energy efficiency class		A+	A+	A	A+	A+	A+	A+
	H3	SCOP	kW / kW	3.53	3.37	2.84	2.95	3.25	3.47	3.33
	H3	η_s	%	138	132	111	115	127	136	130
	H3	P_{rated}	kW	3.28	4.22	4.65	8.68	9.05	8.38	9.37
	H3	Energy efficiency class		A++	A++	A+	A+	A++	A++	A++
Sound levels										
Sound power level ⁽¹⁾ (H3)		dB(A)	62	62	64	67	68	68	68	68
Sound power level ⁽¹⁾ (C1)		dB(A)	64	64	65	68	69	69	69	69
Dimension, H x L x D		mm	821 x 908 x 350	821 x 908 x 350	821 x 908 x 350	1363 x 908 x 350	1360 x 900 x 320	1360 x 900 x 320	1360 x 900 x 320	1360 x 900 x 320
Operating weight ⁽³⁾		kg	57	61	69	104	112	116	116	116
Refrigerant			R410A							
Circuit charge ⁽³⁾		kg	1.195	1.35	1.81	2.45	3.385	2.45	3.385	
		CO ₂ eq.	2.5	2.8	3.8	5.1	7.1	5.1	7.1	
Compressors			DC Inverter Twin-Rotary							
Air heat exchangers			Copper tubes and aluminium fins							
Fans			Variable speed 3 blades fan							
Quantity			1	1	1	2	2	2	2	
Pump			Variable speed circulator							
Expansion tank volume		l	2	2	2	3	3	3	3	
Available static pressure (C1)		kPa	69	72	58	62	37	66	37	
Available static pressure (H1)		kPa	60	60	56	70	58	70	55	
Available static pressure (H2)		kPa	62	60	55	72	60	73	58	
Min. system water content		l	14	21	28	42	49	42	49	
Max. water-side operating pressure		kPa	300	300	300	300	300	300	300	
Water connections										
Diameter		inch	1 M	1 M	1 M	1 M	1 M	1 M	1 M	
Outside tube diameter		mm	25.4 M	25.4 M	25.4 M	25.4 M	25.4 M	25.4 M	25.4 M	
Chassis paint colour			Beige							

* In accordance with standard EN14511-3:2013

** In accordance with standard EN14825:2013, average climate

C1 Cooling mode conditions: evaporator water entering/leaving temperature 12°C/7°C, outside air temperature 35°C, evaporator fouling factor 0 m² K/W

C2 Cooling mode conditions: evaporator water entering/leaving temperature 23°C/18°C, outside air temperature 35°C, evaporator fouling factor 0 m² K/W

H1 Heating mode conditions: Water heat exchanger water entering/leaving temperature 30°C/35°C, fouling factor 0 m² K/W. Outside air temperature 7°C db/6°C wb,

H2 Heating mode conditions: Water heat exchanger water entering/leaving temperature 40°C/45°C, fouling factor 0 m² K/W. Outside air temperature 7°C db/6°C wb,

H3 Heating mode conditions: Water heat exchanger water entering/leaving temperature 47°C/55°C, fouling factor 0 m² K/W. Outside air temperature 7°C db/6°C wb,

(1) In dB ref=10-12 W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1.

(3) Weights are guideline only. Refer to the unit nameplate.



Eurovent certified values

ELECTRICAL DATA

Ereba		4H	6H	8H	12H	15H	12HT	15HT
Power supply	V-ph-Hz	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	400-3N-50	400-3N-50
Voltage range	V	198-264	198-264	198-264	198-264	198-264	376-424	376-424
Full load current	A	9	11	14.5	20.7	22.6	11.1	11.1
Fuse rating	A	10	16	16	25	25	16	16
Main power cable section	mm ²	2.5	2.5	2.5	2.5	2.5	2.5	2.5

SOUND POWER LEVELS LW

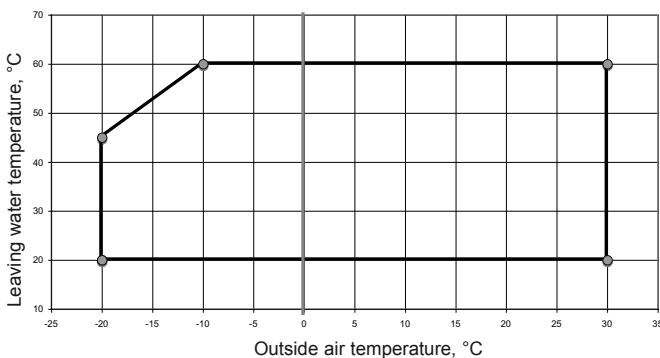
Cooling mode										
Ereba		Octave bands, Hz							Sound power levels	
		125	250	500	1000	2000	4000	8000		
4H	dB	61	68	62	56	51	47	41	dB(A)	64
6H	dB	61	68	63	56	53	50	46	dB(A)	64
8H	dB	66	62	63	59	56	55	51	dB(A)	65
12H	dB	70	65	67	62	58	57	50	dB(A)	68
15H	dB	70	68	66	64	61	58	53	dB(A)	69
12HT	dB	70	68	66	64	61	58	53	dB(A)	69
15HT	dB	70	68	66	64	61	58	53	dB(A)	69

Heating mode										
Ereba		Octave bands, Hz							Sound power levels	
		125	250	500	1000	2000	4000	8000		
4H	dB	67	62	61	56	50	47	43	dB(A)	62
6H	dB	62	64	62	55	50	58	43	dB(A)	62
8H	dB	66	65	63	57	54	52	45	dB(A)	64
12H	dB	70	66	66	61	57	54	46	dB(A)	67
15H	dB	72	68	67	63	59	56	50	dB(A)	68
12HT	dB	72	68	67	63	59	56	50	dB(A)	68
15HT	dB	72	68	67	63	59	56	50	dB(A)	68

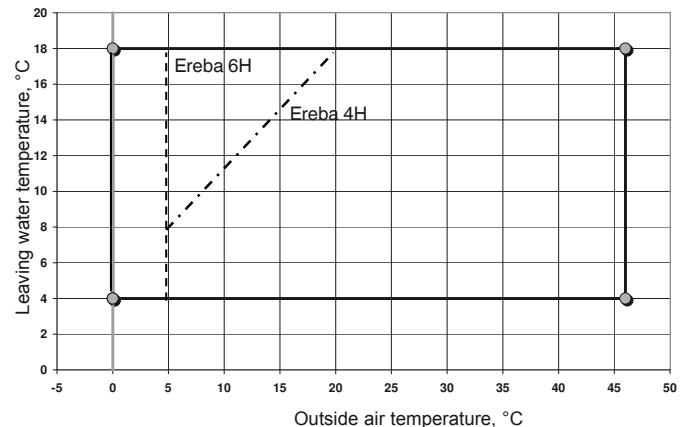
OPERATING LIMITS

	Cooling mode	Heating mode
Maximum outside temperature	46 °C	30 °C
Maximum leaving water temperature	18 °C	60 °C
Minimum outside temperature	0 °C (Ereba 4H, 6H : 5°C)	-20 °C
Minimum leaving water temperature	4 °C	20 °C

Operating range, heating mode

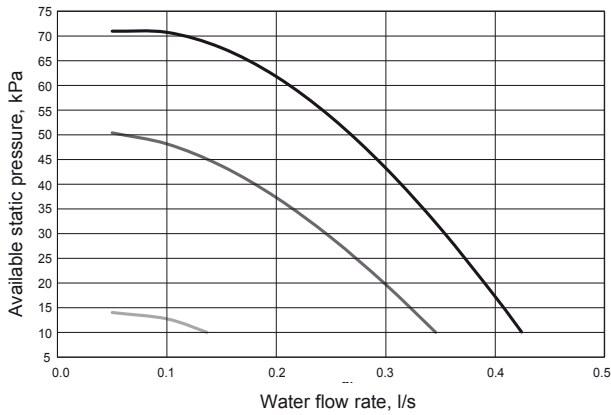


Operating range, cooling mode

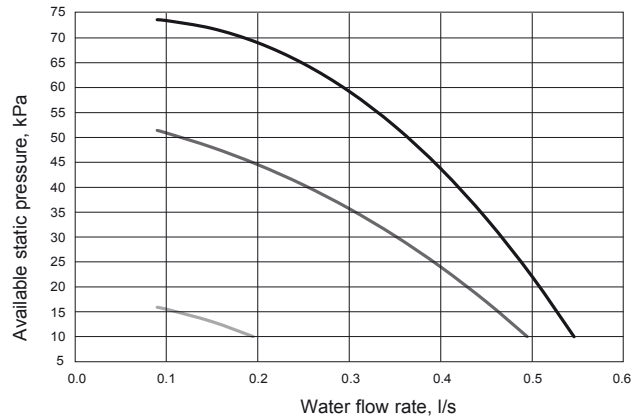


AVAILABLE STATIC PRESSURE

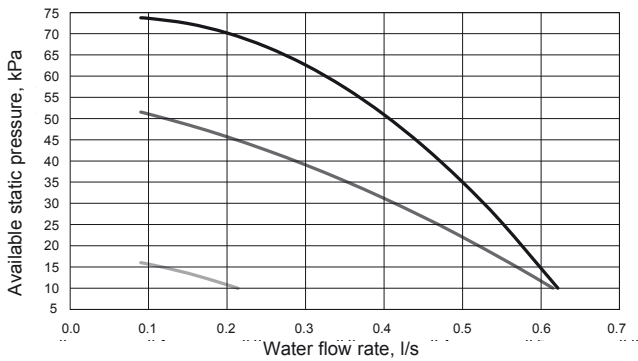
Ereba 4H



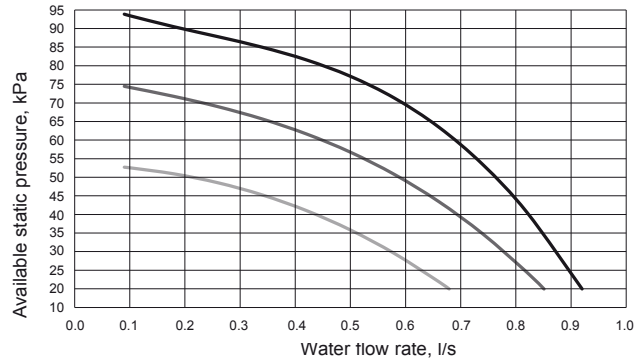
Ereba 6H



Ereba 8H



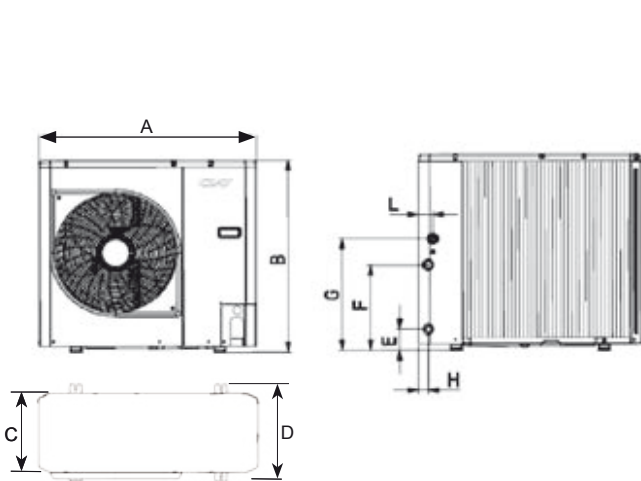
Ereba 12H(T), 15H(T)



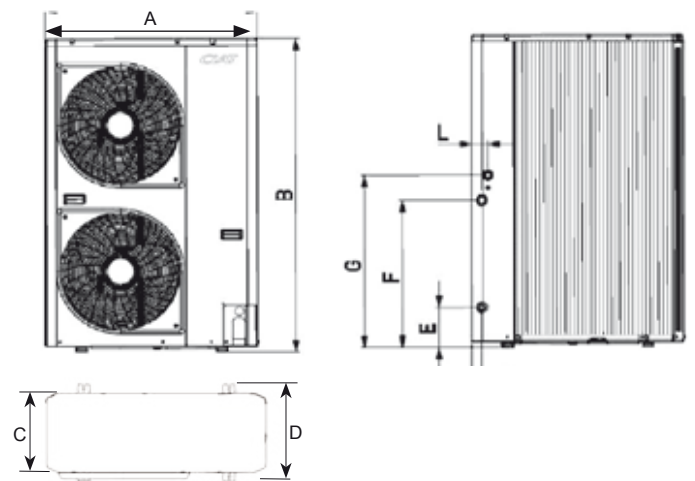
High speed
 Medium speed
 Low speed

DIMENSIONS (MM)

4H, 6H, 8H



12H(T), 15H(T)



Ereba	A	B	C	D	E	F	G	H	L
4H	900	820	320	400	87	356	466	40	60
6H	900	820	320	400	87	356	466	40	60
8H	900	820	320	400	87	356	466	40	60
12H(T)	900	1360	320	400	174	640	750	44	69
15H(T)	900	1360	320	400	174	640	750	44	69



→ Reversible air-to-water heat pump

Ereba

This document is non-contractual. As part of its policy of continual product improvement, CIAT reserves the right to make any technical modification it feels appropriate without prior notification.

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