



Domestic hot water heat recovery unit

*Heat recovery unit
Domestic hot water
High energy efficiency
with **R410A**
Compact and quiet
Scroll compressors
Brazen-plate heat exchangers*



ECOCIAT



Heating



Heat recovery



Heating capacity: 10 to 30 kW

USE

The ECOCIAT heat recovery unit operates on air from a CMV extraction system and is particularly suitable for hotels and healthcare facilities.

This packaged unit is designed for indoor installation as standard.

An outdoor installation kit is also available as an option.

ECOCIAT extracts heat energy from the outlet of a building's continuous mechanical ventilation (CMV) system and uses it to produce hot water. The system operates with a high coefficient of performance, significantly cutting the energy bill for domestic hot water production.

It is designed for installation in a domestic hot water production system. However, it does not replace the system's main source of hot water, which should also protect against Legionella bacteria.

RANGE

ECOCIAT

Heat energy recovery unit operating on CMV exhaust air to produce domestic hot water.

Three sizes available: 30V, 50V and 90V.

DESCRIPTION

ECOCIAT is supplied as standard with the following components:

- Air-source evaporator with axial fan motor assembly.
- Control, automatic operation and electrical panel: Electrical power supply: Three-phase - 50 Hz - 400 V (+6%/-10%) + Earth.
- Casing for indoor installation (optional outdoor installation kit available).
- Brazen plate condenser.

Complies with European directives:

- Machinery directive (98/37/EC)
- Electromagnetic compatibility EMC (2004/108/EC)
- Pressure equipment PED (97/23/EC), category 2

Standards

- EN 60204, EN 378-2 (NFC 15-100, France)



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ECOCIAT

TECHNICAL CHARACTERISTICS

ECOCIAT		30V	50V	90V
Heating capacity (1)	kW	10.33	18.03	31.62
Extracted air flow rate	m³/h	2000	3500	5500
Power input	kW	2.89	4.96	9.02
COP (2)		3.57	3.64	3.51
Radiated sound level Lw / Lp (3)	dB(A)	66.8 / 34.8	71.3 / 39.3	75.8 / 43.8
Compressor		Hermetic scroll (2900 rpm)		
Start-up mode		Direct		
Number of compressors		1		
Power control	%	100-0		
Refrigerant oil type		Polyester POE 3MAF (32 cst)		
Oil content	l	1.25	1.24	3.25
Number of cooling circuits		1		
Refrigerant (GWP)		R410A (1720)		
Refrigerant content	kg	2	2.5	3.5
Electrical power supply		Three-phase - 50 Hz - 400 V (+6%/-10%) + Earth - Remote control transformer included		
Machine protection rating		IP 44		
Condenser		Brazen-plate heat exchanger		
Water content	l	1.42	2.37	2.85
Minimum water flow rate	m³/h	0.8	1.4	2.5
Maximum water flow rate	m³/h	2.2	3.8	6.7
Water connections		Male 1"1/4 G		
Max. pressure, water end	bar	4		
Air-source evaporator		Finned heat exchanger		
Fan	mm	350	450	500
Motor power	kW	0.16	0.35	0.66
Extracted air flow rate	m³/h	2000	3500	5500
Height (excluding mounts)	mm	965		
Length	mm	2227		
Depth	mm	1185		
Net weight without optional intermediate exchangers	kg	338	363	400
Net weight with optional intermediate exchangers		398	427	472
Storage temperature	°C	50		

(1) Conditions: water: +50°C / +55°C - air: +22°C.

(2) COP for gross values.

(3) Overall sound power level (Lw) and overall sound pressure level (Lp) measured at 10 metres in a free field, as per ISO 3744.





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ELECTRICAL CHARACTERISTICS

ECOCIAT		30V	50V	90V
Electrical power supply		Three-phase - 50 Hz - 400 V (+6%/-10%) + Earth - Remote control transformer included		
Max. rated current	A	7.2	11.3	17.8
Starting current	A	35.6	65.0	112.4
Starting current, Soft Start option	A	21.6	39.4	67.9
Breaking capacity	kA	10		
Max. wire cross-section	mm ²	6		

ECOCIAT

STANDARD AND OPTIONAL EQUIPMENT

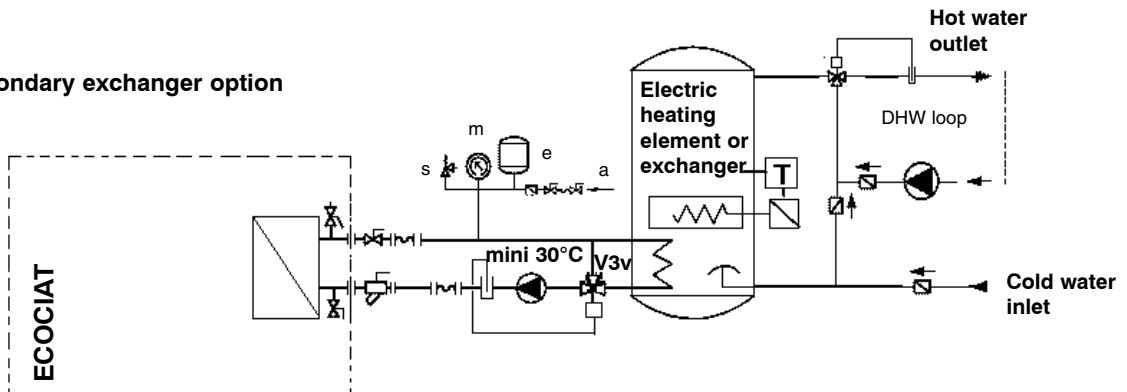
ECOCIAT	30V	50V	90V
Remote-control transformer	Supplied as standard		
Polyurethane coated coil fins	Supplied as standard		
Flexible sleeves for intake duct	Supplied as standard		
Coil protection screen	Supplied as standard		
Phase controller (direction, absence, over and under voltage)	Option		
Soft start	Option		
600 micron water filter + valves	Kit (supplied separately)		
Hydraulic hoses	Kit (supplied separately)		
Secondary exchanger + accelerator pump + expansion vessel + frost protection	Option		
Frost protection	Option		
Sound insulation jacket	Kit (delivered unassembled)		
Resilient mounts	Option		
Canopy for outdoor installation	Option		

AIR FLOW CHARACTERISTICS

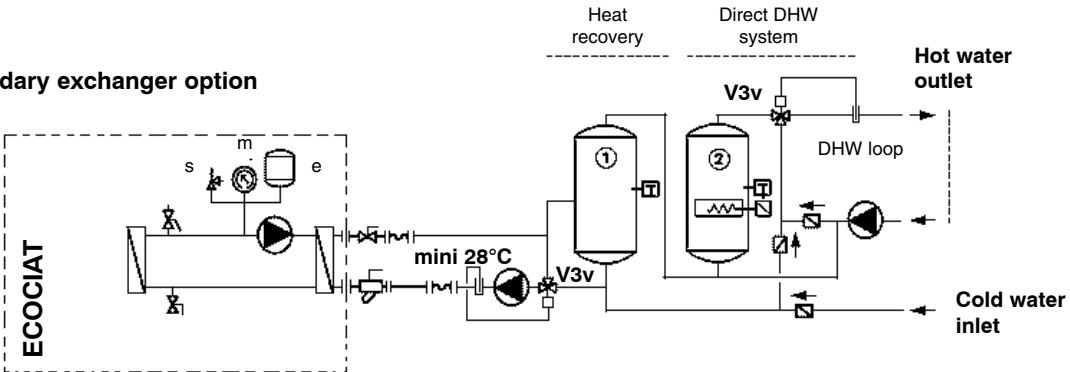
ECOCIAT	Air flow (m ³ /h)	Number of rooms in building								
		Extracted air flow rate per room (m ³ /h)								
		20	25	30	35	40	45	50	55	60
30V	2000	100	80	67	57	50	44	40	36	33
50V	3500	175	140	117	100	88	78	70	64	58
90V	5500	275	220	183	157	138	122	110	100	92

HYDRAULIC AND AIR FLOW CONFIGURATIONS

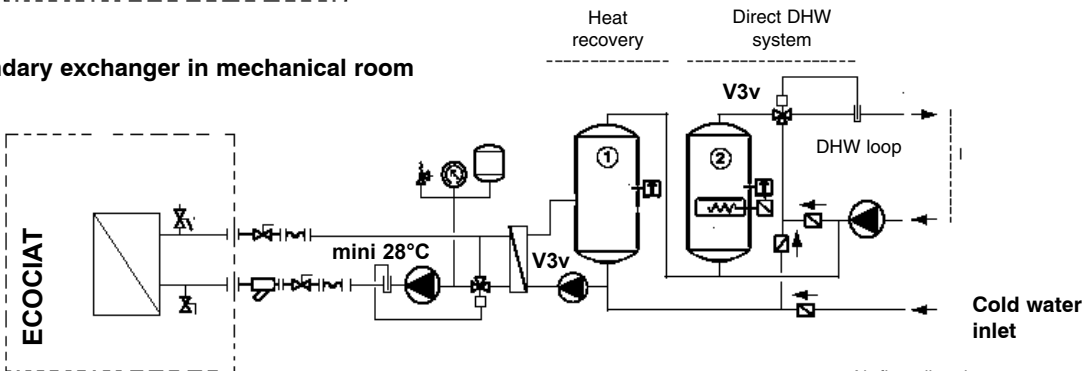
Without secondary exchanger option



With secondary exchanger option



With secondary exchanger in mechanical room



Hot water hydraulic circuit

ECOCIAT : air-to-water recovery unit

- Ps1 Pump water shortfall pressure switch
- V3v Three-way valve
- e Expansion vessel
- C Retaining valve
- m Pressure gauge
- R Cut-off valve
- S Pressure release valve
- Pe Accelerator pump
- T Temperature sensor pocket
- A Water top-up

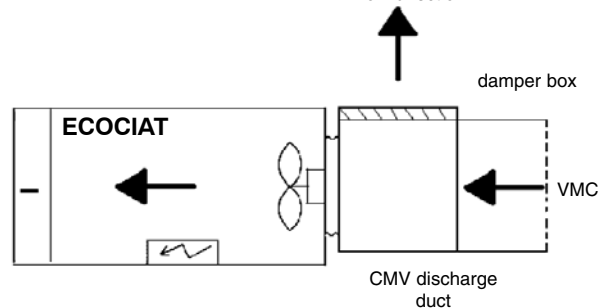
- Filter + valve kit (option)
- Flexible connection kit (option)

General comments:

- P Air vents at pipe high points
- V Drain tappings at pipe low points

IMPORTANT: these principle diagrams are provided for information only and must not be construed as detailed execution diagrams.

Air flow direction



A damper box must be placed on the suction section of ECOCIAT for two reasons. If the flow of air extracted by the CMV system is higher than that carried by the unit, it will open to vent part of the flow. If ECOCIAT is stopped, it will vent the entire flow of the CMV system.



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MAIN COMPONENTS

Casing

- Detachable double-skin galvanised steel panels.
- RAL 7024 lacquered paint.
- Intake connection frame.
- Coil protection screen on outlet.
- Option: canopy for outdoor installation.

Hermetic scroll compressor

- Built-in motor, cooled by gas intake.
- Motor protected by internal winding thermostat.
- Installed on anti-vibration mounts.

Condenser

- Brazed plate exchanger.
- AISI 316 stainless steel end and inner plates.
- Plate patterns optimised for high efficiency.
- Thermal insulation.

Evaporator

- High-efficiency air-cooled heat exchanger (polyurethane-coated aluminium fins, optimised profile, grooved copper tubes).
- Propeller fans with contoured aluminium blades.
- IP 54, class F motor.

Control functions and safety devices

- Fusible plug to protect against excess pressure.
- Thermostatic expansion valve.
- High and low pressure safety mechanisms on cooling circuit.

- Hygroscopic sight glass.
- Dryer filter.
- Unit start-up sequence.
- Short-cycle protection.

Electrical box

The fully wired electrical box housing all the electrical components supervises the operation of the unit and provides an interface with an external control system.

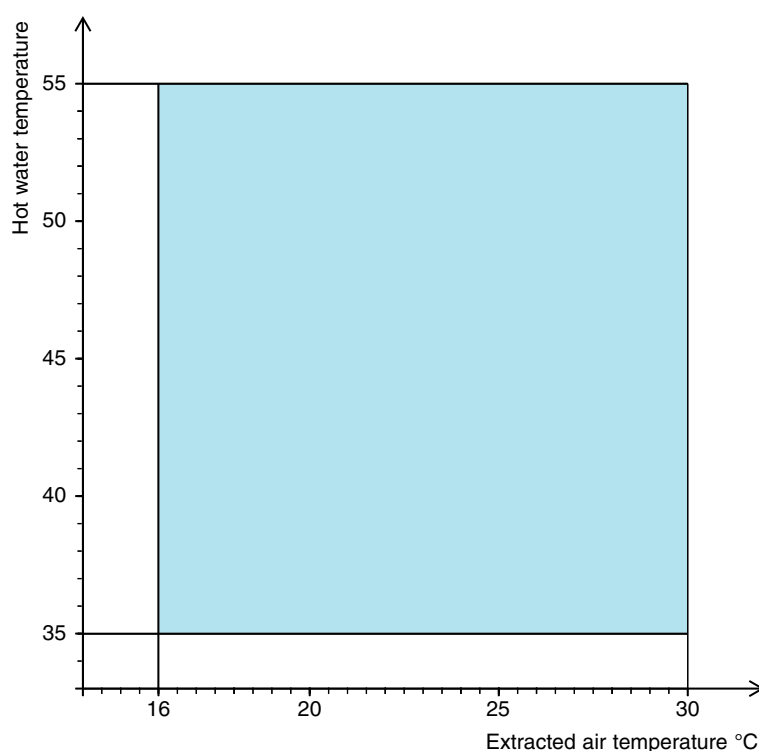
The box features:

- Control and power circuits.
- Transformer for the control circuit.
- Numbered wiring.
- Main safety switch with handle on front.
- Circuit breakers for control and power circuits.
- Contact switches for compressor motor, fan and pump.
- Main earth connection.
- Potential-free terminals for alarm and information signals (signalling of manual reset and automatic reset alarms, short-cycle protection and contacts for remote control).

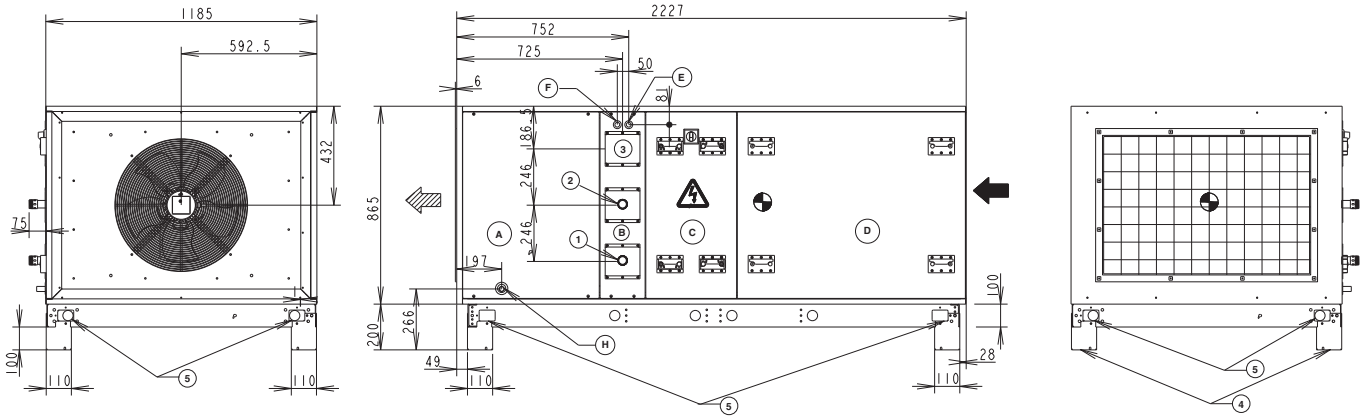
Intermediate heat exchanger (optional)

- 316 stainless steel gasketed-plate heat exchanger, cleanable mechanically.
- Accelerator pump for primary loop.
- Expansion vessel for primary loop.
- Safety valve.
- Frost protection.

OPERATING RANGE (AT FULL CAPACITY)



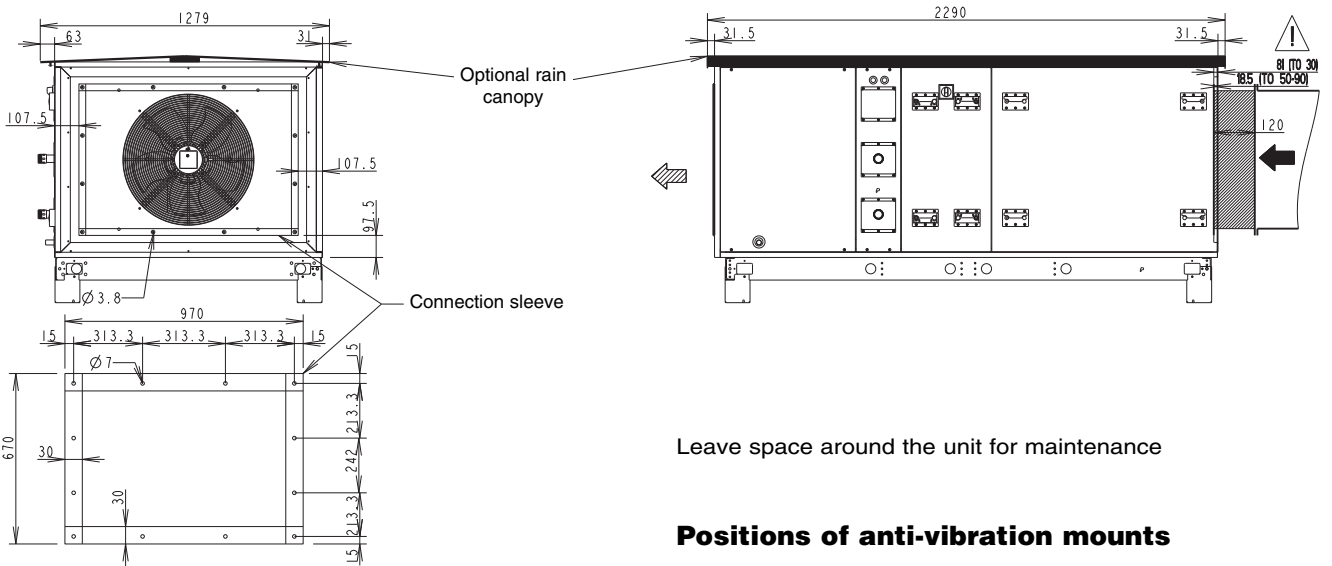
DIMENSIONS



➔ Exhaust air intake

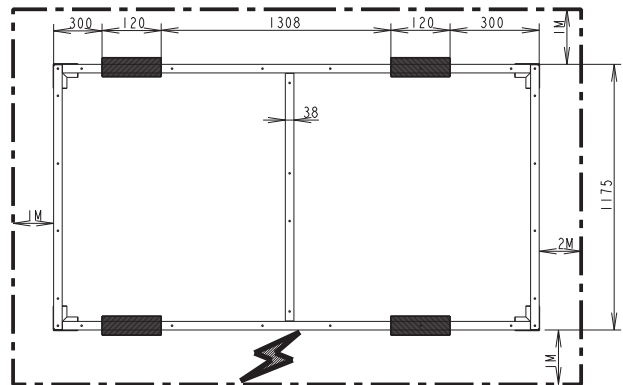
▨ Exhaust air out

● Centre of gravity



Leave space around the unit for maintenance

Positions of anti-vibration mounts



A	Coil, pump access panel
B	Fixed access panel for hydraulic and electrical connections
C	Removable panel for access to electrical panel and expansion valve - dryer
D	Removable panel for access to compressor, condenser and fan
E	Electrical power supply (dia. 28 mm)
F	User electrical connections (dia. 28 mm)
H	Condensate drain pipe (dia. 22.2 mm)
1	Water inlet, 136 x 136 mm (1 1/4" G male coupling)
2	Water Outlet, 136 x 136 mm (1 1/4" G male coupling)
3	
4	Four removable legs (remove on site)
5	Lifting points (dia. 45 and 48 x 70 mm)

ECOCIAT	Length L mm	Width W mm	Height H mm	Weight kg				
				Without secondary exchanger option		With secondary exchanger option		Rain canopy only option
				Empty	In operation	Empty	In operation	
30V	2227	1185	965	338	344	398	408	26
50V	2227	1185	965	363	370	427	440	
90V	2227	1185	965	400	408	472	488	