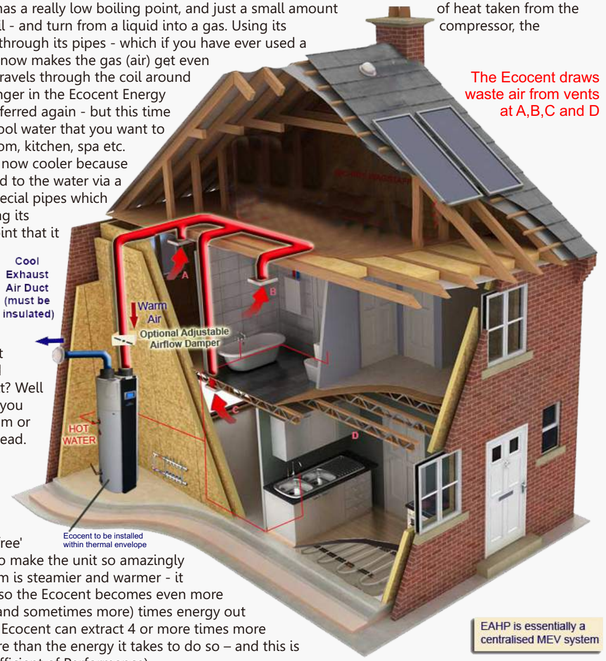
How does an Ecocent work?

The ASHP part of an Ecocent gently draws 'waste' air into its top section through air ducts placed in areas of the house that are likely to carry warm damp air, such as kitchens, bathrooms and utility rooms. We call it 'waste' air because its air you'd normally want to get rid of – from steamy baths and showers, boiling pots and pans, that sort of thing. It does this by a low power and extremely quiet fan which blows the air over the fins of a device called the evaporator, which contains a special liquid gas (you might have heard of it before as 'refrigerant'). As heat always travels from a hot to a cold material, the heat moves from the air to the refrigerant inside the evaporator. Refrigerant has a really low boiling point, and just a small amount of heat taken from the air makes the refrigerant boil - and turn from a liquid into a gas. Using its compressor, the Ecocent pumps the hot gas through its pipes - which if you have ever used a bicycle pump before you'll know makes the gas (air) get even hotter. The hotter gas then travels through the coil around the tank (or to a heat exchanger in the Ecocent Energy model) and the heat is transferred again - but this time from the hotter gas to the cool water that you want to heat and use in your bathroom, kitchen, spa etc. Meanwhile the gas, which is now cooler because the heat has been transferred to the water via a condenser, flows through special pipes which allow gas to expand, reducing its pressure cooling it to the point that it turns back into a liquid. The cooled liquid travels back through to the evaporator where the whole process starts again.



What happens to the air that has had the heat energy and moisture stripped out from it? Well that's expelled outside, or if you want to cool a particular room or area it can be sent there instead.

The Ecocent mainly uses electricity for two things – to run the fan and the compressor motors, but of course this is added to the 'free' energy taken out of the air to make the unit so amazingly efficient. If the air in the room is steamier and warmer - it contains even more energy, so the Ecocent becomes even more efficient. We say you get 4 (and sometimes more) times energy out than you put in because the Ecocent can extract 4 or more times more energy out of the atmosphere than the energy it takes to do so – and this is called its COP (short for Coefficient of Performance).

WHAT'S UNDER THE BONNET?

We're not exactly talking new technology here - because this is pretty much how a fridge works. We're sure you'd be surprised to hear that the fridge in a similar form as we know it now was invented in the same year as the Battle of Trafalgar – in 1805! We've taken that same principle and added one extra stage - instead of taking the heat out of the inside of the fridge and dumping it to the atmosphere, the Ecocent takes the heat out of the atmosphere and channels that heat into your water. Simple, proven, highly effective, and very reliable – we bet you've had more trouble with your traditional boiler than you have had with your fridge!

RBS and NHS Approved

APPROVED PRODUCT MCS kiwa

RECC Constructionline Part of Capita plc

ESP Ecocent Series-EAHP Hot Water

For hot water / Thermovec / Radiators / UFH

Compare the Specification:

Model		Energy	100	200/300	200S/300S	Maxi 300
						
ErP Energy Label		A	A	A	A	A
Power Supply		230V~/50Hz	230V~/50Hz	230V~/50Hz	230V~/50Hz	230V~/50Hz
Heating Power Input	kW	0.81	0.27	0.64	0.68	0.89
Rated Heating Capacity (ASHP only)	kW	3.0	1.0	2.3	2.5	3.45
Rated Current Input	A	3.52	1.17	2.78	2.8	3.86
Moisture resistance		IPX4	IPX1	IPX1	IPX1	IPX1
Rated outlet water temp.	℃	55	55	55	55	55
Aux heating element	L	n/a	1.0	1.5	1.5	1.5
Water tank capacity	kW	n/a	100	200/300	200/300	300
Expected Recovery Time	L/Min	1.3	0.41	1.1	1.1	1.4
Air Pressure	Pa	50	40	40	40	50
Air Volume (max)	m^3/hr	450	230	350	350	450
Water Connection		3/4"	1/2"	3/4"	3/4"	3/4"
MCS Approved		✘	✓	✓	✓	✓
Integrated Cylinder		✘	✓	✓	✓	✓
Corrosion protection (anodes)		N/A	Magnesium	Mag + Titanium	Mag + Titanium	Mag + Titanium
Aux Water Coil (additional heat)		N/A	0	2	1	2
Noise	dB(A)	49	45	45	45	45
Net weight	kg	46	56	89/92	110/128	107
Net Dimensions (L/W/H)	mm	635*530*447	520x520x1305	560x560x1705 640x640x1800	585x565x1755 660x640x1825	640x640x1945

Instant heating: Ambient temp.(DB/WB): 15˚C/13˚C, Water temp.(In/Out): 15˚C/55˚C;
Work range: Ambient temp is 0-43˚C/24˚C. Max temp of water tank is 60˚C

The data above is for reference only. For more specific data, please refer to the dataplate on the unit.

ESP - Earth Save Products Ltd
TEL: +44-1865-598158
E-mail: infoesp@esavep.com Website: www.esavep.com

EarthSaveProducts
Renewable Energy Solutions

EarthSaveProducts
Renewable Energy Solutions

ESP ECOCENT-HOT WATER AIR SOURCE HEAT PUMPS

It's not by chance...

The ESP Ecocent range of Air Source Heat Pump (ASHP) based water heaters are the industry leaders.
Innovative design founded on experience, quality of materials, coupled with attention to detail - all essential ingredients in an Earth saving product

RECC
RENEWABLE ENERGY CONSUMER CODE

6 GOOD REASONS TO CONSIDER AN ECOCENT

101 SAVES YOU LOTS OF MONEY

Simply put, Ecocents are enormously efficient. For every 1kW of electricity you put in, you get about 4kW of energy out! That's not a typo. If you compare that with say an immersion heater, where for every 1kW of energy you put in you'll likely get no more than 0.95kW back, it's easy to see how much less power you'll use with an Ecocent - and how much you'll save!

102 REMOVES CONDENSATION and reduces humidity

The Ecocent draws in moist and steamy air from bathrooms and kitchens, and while it's harvesting the energy from that air it also removes the water vapour too. So unlike with a traditional bathroom extractor fan, or even an open window, with an Ecocent mildew and mould are a thing of the past. Not only that but even hot and humid summer days feel better too!

103 IMPROVES AIR QUALITY

Apart from removing moisture and humidity, the Ecocent can also improve the air quality in your home. When used as an MEV it very gently draws air from all over your home **IN** to key areas such as kitchens and bathrooms. Because the air pressure is going to be slightly lower in those areas, all nasty niffs and odours won't permeate **OUT** to the rest of the house, leaving the air fresher and purer.

ECOCENT Intelligent Controls / Remote App

PROGRAMMABLE MODES

Each Ecocent has a variety of modes that can be selected to suit your needs including a 'boost' to ramp up hot water production at times - like for when you've been on holiday.

MOBILE APP CONTROL

After downloading the app on your Iphone/Ipad or PC and adding an **(optional)** module on your Ecocent, you can control the unit anytime and anywhere. Very handy if you are away from your home for long periods.

INTELLIGENT PANEL

The front panel is a touch screen display which allows you precise control of the unit while also displaying important information like how much hot water is available and at what temperature, plus easy access to the unit's programming features.

104 TURN OFF YOUR BOILER

Because your Ecocent can efficiently supply all your domestic hot water requirements all year round, if you don't need to heat your house you simply don't need your boiler turned on. So when the weather warms up, switch the boilers off and stock up on your oil or LPG for winter at cheaper summer prices and save even more!

105 SLEEP PEACEFULLY

With an Ecocent as part of your MEV solution, there's no need for noisy extractor fans that can wake you up when someone uses the bathroom at night. You can also relax in the reassuring knowledge that your household bills are going to be lower!

106 KEEPING YOU COOL

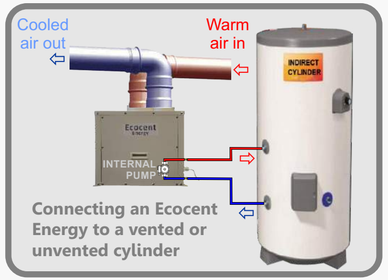
After the heat and moisture has been withdrawn from the input air, you are left with cool dry air. This chilled air can be expelled outdoors, or by design it can be vented into rooms that you want to add comfort cooling to - like bedrooms. It's similar to air conditioning as a free by-product, although only when hot water is being produced.

RETROFITTING an Ecocent
TO AN EXISTING SYSTEM

Even if you already have tanks installed, or don't have space for one of our Ecocent Cylinders, you can still take advantage of the technology by fitting the innovative **Ecocent Energy**

The Energy is in effect the top part of an ordinary Ecocent separated into its own enclosure, although the power has been slightly increased, as most alternative cylinders just aren't as efficient as an Ecocent cylinder.

It's really simple to fit too - it runs from an ordinary 13a supply, so once you've fitted the air ducting all you need to do is put in a condensate drain and connect a small heating circuit to your cylinder. Its even got a pump built in to make life that much easier.



- **Compatible with vented & unvented tanks**
- **Fits in compact spaces - such as lofts**
- **Fit and forget system - minimal maintenance**
- **Water costs 4x less to heat than immersion heaters**
- **Can work independently of existing heating system**
- **Switch off your existing boiler for the Summer**

IMPORTANT Components

HIGH EFFICIENCY Micro Channel Heat Exchanger
Greatly increased surface area between the inside of the water tank and heat exchanger results in an enhanced performance over other HP based water heaters. In tests using the EN16147 standard our units returned a remarkable COP of up to 4.

HIGH GRADE STAINLESS STEEL
The Ecocent's cylinder is built from high grade stainless steel sheet, benefiting from excellent anti-corrosion properties yet remaining lightweight - ideal for locating in upper floors of buildings where weight reduction is an important factor.

COMPRESSOR
We use a special Hitachi heat pump compressor perfectly matched to the other components inside the unit.

OUTSIDE COIL
An aluminium coil wrapped around the outside of the water tank ensures the heat coil is separated from the water, ensuring a longer life.

FIN COIL With Hydrophilic Coated Heat Exchanger
4 rows of fin coil heat exchangers with a hydrophilic coating benefit from a uniquely intelligent and fast defrost process even in the chilliest of winters.

VORTEX Fan Motor
By using a "vortex" fan motor we've reduced the noise by a further 20% so it's now really quiet - only 45dB.

TRANQUIL FLOW Heat Exchanger
Using "tranquil flow" technology means we draw water from the inlet slower, so the surface isn't disturbed, enabling the volume of usable hot water to be increased by 35%.

ALL-IN-ONE Noise Reducing Design
A wave shaped sponge surface plays a vital role in noise insulation, providing a super quiet operation, the noise being dissipated by bouncing the sound waves around the sponge layers.

WHAT IS AN ECOCENT?

An Ecocent is like the 'Swiss Army knife' of hot water. An innovative and extremely versatile integrated heat pump and water cylinder that operates as a stand-alone unit, or in conjunction with traditional or other renewable energy technologies. That means that no matter what your existing system is - you'll be able to fit in an Ecocent and take advantage of its amazing efficiency and flexibility.

We've seen them used...

- To supply domestic hot water
- As a heat source for Thermovec radiators
- In commercial laundries
- To heat spas and 'Jacuzzis'
- To run commercial dish washers
- To run underfloor heating
- To cut out long pipe runs in big buildings
- To cool kitchen work areas