

Daikin Altherma

# hybrid heat pump



The natural combination

# Why choose Daikin?

As an industry leader, Daikin combines broad experience, technical innovation and responsive customer service to help you meet all your objectives.

## ✓ Comfort

Optimal comfort levels at all times in terms of space heating and domestic hot water production is crucial: the Daikin Altherma heat pump delivers this as only Daikin can.

## ✓ Control

Our specially developed and proven control system with its new user interface makes the Daikin Altherma heat pump intuitive and easy to control, allowing you to be totally in charge of your comfort and your costs.

## ✓ Energy Efficiency

By using free, renewable energy combined with our highly efficient inverter heat pump technology, the Daikin Altherma delivers the ultimate in seasonal energy efficiency.

## ✓ Reliability

Reliability is a prerequisite for any new heating system. Daikin technology, designed and manufactured to the highest standards, has proved to be the ultimate in reliability. Based on years of development and experience, and manufactured to exact tolerances, our technology will give years of trouble free operation.



# Why choose

## Daikin Altherma hybrid heat pump?

### Time to rethink heating

- › **Automatic switch** between heat pump, gas boiler or hybrid operations - always selecting the most economical mode.
- › **Low running costs** for heating and hot water compared to traditional boilers
- › Heat your existing home with **up to 60% renewable energy** without changing your radiators
- › Ideal for **renovation** applications
- › **Easy and fast** installation
- › Secure for future changes in gas and electricity prices
- › **Low cost of investment** and a **higher return** than a typical savings account

It's simple really – the Daikin Altherma hybrid heat pump, with its use of a gas condensing boiler to deliver superior performance, offers a high level of all-year-round comfort with optimal use of the different technologies.

It is programmed to automatically select the right mix of the technologies to maximise the energy efficiency and deliver perfect comfort levels.



## Seasonal efficiency, smart use of energy



The EU wants to make people aware of what units are consuming and ban non-efficient products from the market. Seasonal efficient units reflect the standardised conditions you can expect over an entire heating and cooling season. From September 2015 onwards, heating systems like heat pumps, combustion, domestic hot water tanks or any kind of combination, will receive an energy label to help the customer to make the most efficient choice.

### System efficiency :



\*EHYHBH05AV32 / EVLQ05CV3 + EHYKOMB33AV2



+



Hybrid operation

## What is condensing boiler technology?

Condensing boiler technology converts waste energy from the flue gases into usable heat, virtually without loss. This is good for both the environment and your wallet. Lower energy consumption means lower heating costs, less use of energy resources and a reduction in CO<sub>2</sub> emissions.

How does it work? Flue gas is cooled, condensing the steam it contains. The energy released in this process is used as heating energy.

## What is an air-to-water heat pump?

The Daikin Altherma air-to-water heat pump uses a sustainable and renewable energy source. It extracts free heat from the outside air. In a closed loop containing a refrigerant, a thermodynamic cycle is created through evaporation, condensation, compression and expansion. This thermodynamic process will bring the free heat, from outside, to the inside of your house.

# Automatic switch between heat pump, gas boiler or hybrid operations - always selecting the most economical mode.

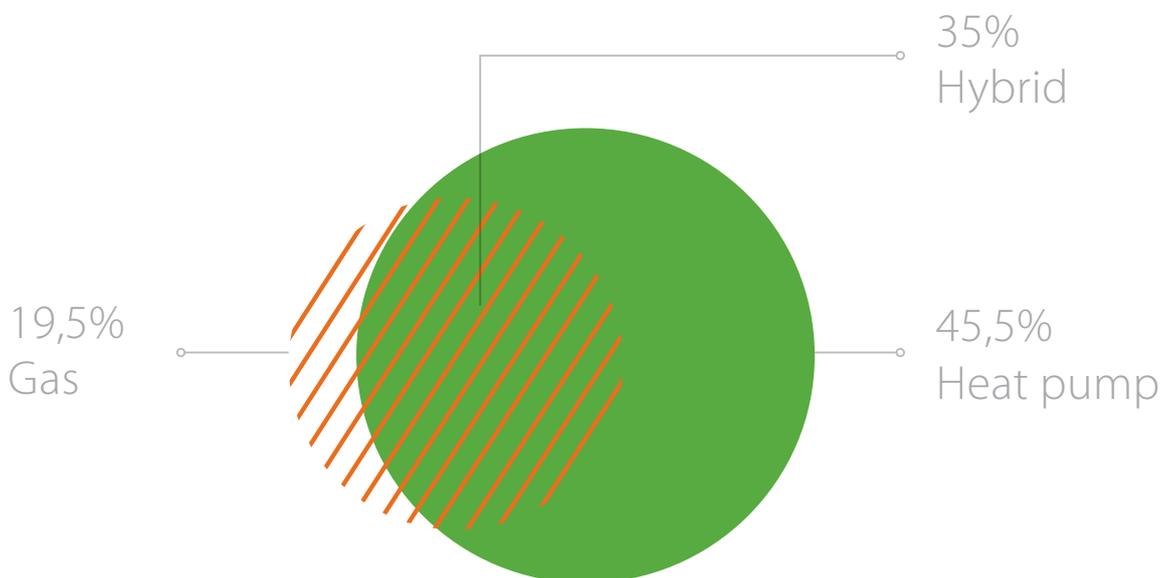
## A. Space heating: most economical mode

Depending on the outdoor temperature, energy prices and the internal heat load, **the Daikin Altherma hybrid heat pump intelligently chooses the heat pump, the gas boiler or both (hybrid operation) - always selecting the most economical mode.**

35% efficiency gain for space heating over condensing boilers

### Daikin Altherma hybrid heat pump chooses operation mode:

Based on an average European climate



### Heat pump operation

Our heat pump is the best available technology for optimising running costs at moderate outdoor temperatures, resulting in a Coefficient Of Performance (COP) of 5.04!

### Hybrid operation

If a high heat load is required, or for the best efficiency under certain conditions, both the gas boiler and the heat pump operate at the same time. The switch from heat-pump operation to hybrid operation depends on the house characteristics, energy prices, the requested temperature to your heat emitter system, the outdoor temperature and the efficiency of the heat pump of that moment.

### Gas operation

When outdoor temperatures drop drastically and the resulting water flow temperature increases, it is no longer efficient to operate in hybrid mode. The unit will switch automatically to gas operation only.

## B. Domestic hot water: more efficient with gas condensing technology

Thanks to a special dual heat exchanger, water is heated up to 10-15% more efficiently than with traditional gas condensing boilers.

- › Cold tap water flows directly into the heat exchanger for better efficiency.
- › Optimal and continuous condensing of flue gas captures energy during domestic water heating.



## Low costs of investment: ideal for renovation applications

You don't need to replace the existing radiators and pipework. Our Daikin Altherma hybrid heat pump connects directly to your existing heating emitter system, reducing the cost and disruption of installation. And thanks to its compact dimensions, your new Daikin Altherma system needs a very similar space to the existing system, so there is no loss of room or need for structural modifications.

Similar dimensions to that of an existing system



## Easy and fast installation: 3 components

**1 Heat pump outdoor unit**



+



**2 Gas condensing boiler**

2 in one

**3 Heat pump indoor module**

As the heat pump indoor module and gas condensing boiler are delivered as separate units, they are easier to handle and manipulate, and easier to install. All the components can be accessed from the front, which makes the unit easy to service and maintain.

# Case Study



Amy is very happy with her new hybrid heating system and explained that she wanted a cheaper, greener supply of energy and a more constant, comfortable temperature for her children. It also helps to counter the effects if future energy price increases.

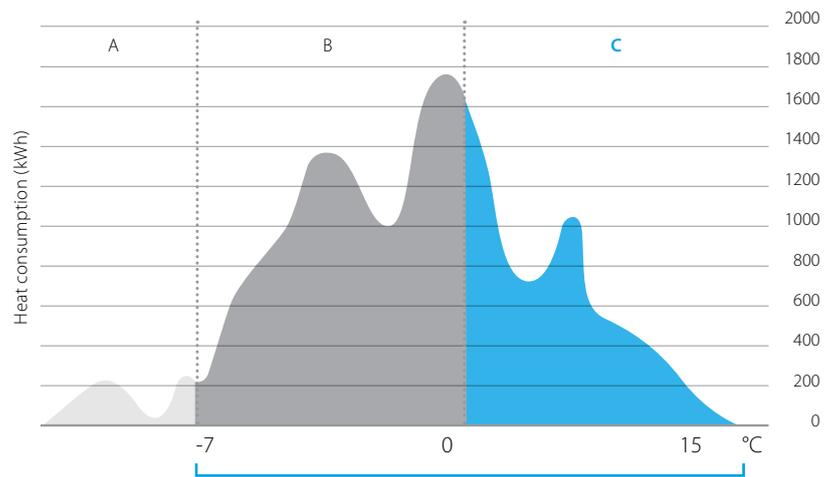
Homeowner, Dorset, UK

Watch Amy's full story on [www.daikineurope.com/hybrid](http://www.daikineurope.com/hybrid)

The parameters below are based on a typical European winter. They show that a hybrid system always provides the most cost-efficient operation, no matter what the conditions are.

- A 100% use of gas boiler
- B Heat pump + gas boiler
- C 100% use of heat pump

Heat consumption during winter



35% more efficient space heating compared to existing gas condensing boiler

	Daikin altherma hybrid heat pump	New gas condensing boiler	Existing gas non-condensing boiler
<b>Space heating requirement: 19,500 kWh</b>			
Energy supplied by heat pump	12,800 kWh	-	-
Efficiency of heat pump	3.64 SCOP*	-	-
Running costs	€ 675	-	-
Energy supplied by gas boiler	6,700 kWh	19,500 kWh	19,500 kWh
Efficiency of gas boiler	90%	90%	75%
Running costs	€ 521	€ 1,517	€ 1,820
<b>Space heating requirement: 19,500 kWh</b>			
Energy supplied by gas boiler	3,000 KWH	3,000 KWH	3,000 KWH
Efficiency of gas boiler	90%	80%	65%
Running costs	€ 233	€ 263	€ 323
<b>Total Running costs</b>	<b>€ 1,429</b>	<b>€ 1,780</b>	<b>€ 2,143</b>

\* or 364%

Yearly savings:  
for space heating and domestic hot water

-20% versus new gas condensing boiler 351 €/year

-33% versus existing gas non-condensing boiler 714 €/year

## Conditions

Heat load\* 16 kW, Design temperature -8°C, Space heating off temperature 16°C, maximum water temperature 60°C, minimum water temperature 38°C, gas price €0.070/kWh, electricity price (day) €0.237/kWh, electricity price (night) €0.152/kWh, total space heating requirement 19,500 kWh, total DHW heating requirement (4 people) 3,000 kWh

\*Energy needed to maintain comfortable indoor temperatures during one year.

# Specifications

Efficiency data				Heating Only		Heat Pump
				EHYHBH05AV32 + EVLQ05CV3	EHYHBH08AV32 + EVLQ08CV3	EHYHBX08AV3 + EVLQ08CV3
Heating capacity	Nom.		kW	4.40(1) / 4.03(2)	7.40(1) / 6.89(2)	7.40(1) / 6.89(2)
Cooling capacity	Nom.		kW			6.9(1) / 5.4(2)
Power input	Heating	Nom.	kW	0.87(1) / 1.13(2)	1.66(1) / 2.01(2)	1.66(1) / 2.01(2)
	Cooling	Nom.	kW		-	2.01(1) / 2.34(2)
COP				5.04(1) / 3.58(2)	4.45(1) / 3.42(2)	4.45(1) / 3.42(2)
EER						3.42(1) / 2.29(2)
Domestic hot water heating	General	Declared load profile		-	-	-
	Average climate	$\eta_{wh}$ (water heating efficiency)		%	96	96
		Water heating energy efficiency class			A	A
Space heating	Average climate water outlet 55°C	General	$\eta_{s}$ (Seasonal space heating efficiency)	%	128	127
			Seasonal space heating eff. class		A++	A++
	Average climate water outlet 35°C	General	$\eta_{s}$ (Seasonal space heating efficiency)	%	-	-
			Seasonal space heating eff. class		-	-

Indoor Unit				EHYHBH05AV32	EHYHBH08AV32	EHYHBX08AV3	EHYKOMB33A2/3
Gas	Consumption (G20)	Min-Max	m <sup>3</sup> /h	-	-	-	0.78-3.39
	Consumption (G25)	Min-Max	m <sup>3</sup> /h	-	-	-	0.90-3.93
	Consumption (G31)	Min-Max	m <sup>3</sup> /h	-	-	-	0.30-1.29
	Connection	Diameter	mm	-	-	-	15
Central heating	Heat input Q <sub>n</sub> (net calorific value)	Nom	Min-Max(3)	kW	-	-	7.6 / 6.2 / 7.6-27 / 22.1 / 27
	Output P <sub>n</sub> at 80/60°C	Min-Nom(3)		kW	-	-	8.2 / 6.7 / 8.2-26.6 / 21.8 / 26.6
	Efficiency	Net calorific value		%	-	-	98(4) / 107(5)
	Operation range	Min-Max		°C	-	-	15/80
Domestic hot water	Output	Min-Nom		kW	-	-	7.6-32.7
	Water flow	Rate	Nom	l/min	-	-	9.0 / 15.0
	Operation range	Min-Max		°C	-	-	40/65
Supply air	Connection			mm	-	-	100
	Concentric				-	-	Yes
Flue gas	Connection			mm	-	-	60
	Colour				White	White	White - RAL9010
Casing	Material				Precoated sheet metal		
	Dimensions	Unit	HeightxWidthxDepth	mm	902x450x164		820x490x270
Weight	Unit			kg	30	31.2	31.2
Power supply	Phase/Frequency/Voltage			Hz/V	-	-	1~/50/230
Electrical power consumption	Max.			W	-	-	55
	Standby			W	-	-	2
Operation range	Heating	Ambient	Min.~Max.	°C	-25~25	-25~25	-
		Water side	Min.~Max.	°C	25~55	25~55	-
	Cooling	Ambient	Min.~Max.	°CDB	-	10~43	-
		Water side	Min.~Max.	°C	-	5~22	-
Notes					-		For water circuit central heating, safety valve: refer to EHYHB*

Outdoor Unit				EVLQ05CV3	EVLQ08CV3
Dimensions	Unit	HeightxWidthxDepth	mm	735x832x307	
Weight	Unit			kg	54
Compressor	Quantity				1
	Type				Hermetically sealed swing compressor
Operation range	Heating	Min.~Max.		°CWB	-25~25
Refrigerant	Type				R-410A
	Charge			kg	1.45
Sound power level	Heating	Nom.			61
	Sound pressure level	Heating	Nom.		
Power supply	Name/Phase/Frequency/Voltage			Hz/V	V3/1~/50/230
Current	Recommended fuses			A	20

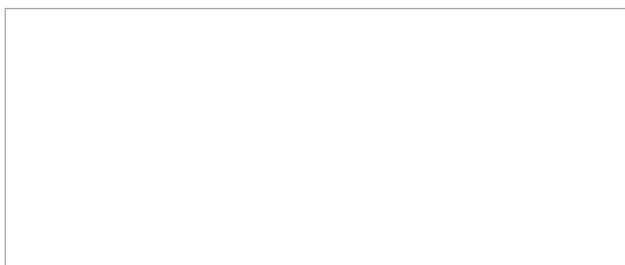
(1) Condition 1: cooling Ta 35°C - LWE 18°C (DT = 5°C); heating Ta DB/WB 7°C/6°C - LWC 35°C (DT = 5°C) (2) Condition 2: cooling Ta 35°C - LWE 7°C (DT = 5°C); heating Ta DB/WB 7°C/6°C - LWC 45°C (DT = 5°C)  
(3) Values according to G20 /G25/G31(4) 80/60 (5) 40/30 (30%)



## Trust Daikin

Daikin may not be a household name. After all, we don't make cars, TVs, fridges or washing machines. But we do make world-class heat pumps. In fact, more than 275,000 Daikin Altherma heat pumps have been fitted across Europe since its initial launch in 2006. Because we focus on doing only what we're best at: creating the most efficient heating, ventilation and air conditioning solutions, renowned for design excellence, quality and reliability. So you can depend on Daikin for the ultimate in comfort, leaving you free to focus on other essentials.

**Daikin Europe N.V.** Naamloze Vennootschap Zandvoordestraat 300 · 8400 Oostende · Belgium · [www.daikin.eu](http://www.daikin.eu) · BE 0412 120 336 · RPR Oostende (Responsible Editor)



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