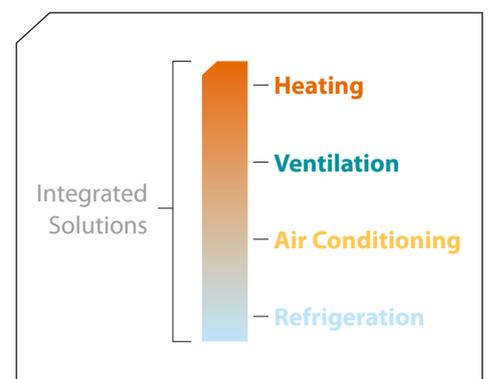




# Efficient, renewable heating

For new build homes



# Shaping the homes of the future, today

The way we heat homes is changing. New technologies are more efficient than ever. Renewable energy heating systems are already transforming the homes of the future. Daikin is at the forefront of this renewables revolution.

Daikin renewable energy heating systems are ideal for new homes and make maximum use of the renewable energy all around us.

Daikin Altherma air-water heat pumps and solar thermal systems convert free heat energy from the air and sun to deliver completely reliable and controllable heating and hot water – even when the outside temperature is well below zero.

Daikin is a market leader in heat pump technology, renowned for innovation and quality.

You can depend on Daikin to deliver highly energy-efficient solutions that reduce the environmental impact of warming new homes, without any compromise on heating and hot water reliability or performance.



# Create more sustainable and attractive homes with Daikin

With energy efficiency high on the agenda and fuel prices rising, homes that use renewable sources for heating and hot water are increasingly attractive for home owners and tenants alike.



## Adding value

In the private market, with ever more discerning buyers, homes with innovative and energy saving features are more desirable than less efficiently designed properties. Reduced running costs mean that potential buyers of new homes can look forward to lower bills – a major selling point in today's economy.

## Improving sustainability

In the social housing sector, Daikin's MCS accredited renewable energy heating systems can help providers of new social housing to meet their targets – both for alleviating fuel poverty and delivering sustainable homes. So specifying new properties with Daikin air-water heat pumps and solar thermal panels is a win-win solution.

## Daikin's heating and renewables range offers:

- > High energy efficiencies
- > Lower running costs
- > Reduced CO<sub>2</sub> emissions
- > Excellent reliability
- > Space saving, low noise units
- > Easy installation and maintenance

# Renewables have never been so important

Daikin renewable energy systems can assist housebuilders and property developers to achieve the required levels of the Code for Sustainable Homes and help improve SAP ratings.



## Zero Carbon and the Code for Sustainable Homes

To help achieve the national target of cutting carbon emissions by 80 per cent by 2050, all new homes built from 2016 must be zero carbon i.e. deliver zero carbon emissions from the energy required for home heating, cooling, hot water and lighting. This is a very challenging target and will require considerable innovations to improve on current practices.

The Code for Sustainable Homes is helping to raise standards for new homes, thus assisting in the progress towards zero carbon. Daikin's renewable energy heating systems can help housebuilders and property developers to deliver homes with higher Code for Sustainable Homes ratings – and ultimately progress towards Zero Carbon design in new homes.

## Performing to Building Regulations

The current Building Regulations specify higher insulation requirements, so new homes are more thermally efficient than ever before. As a result, they are also increasingly suited to renewable energy solutions such as air-water heat pumps that typically deliver lower flow temperatures than fossil fuel systems.

However their performance is generally higher than traditional heating systems.

Daikin Altherma low temperature heat pumps deliver some of the very highest efficiencies available in the market today. Capable of achieving a Co-efficient of Performance (COP) of up to 4.38<sup>1</sup> when designed and installed correctly, Daikin Altherma LT systems can be more efficient than traditional boilers and will typically save on running costs when compared with old oil and LPG boilers.

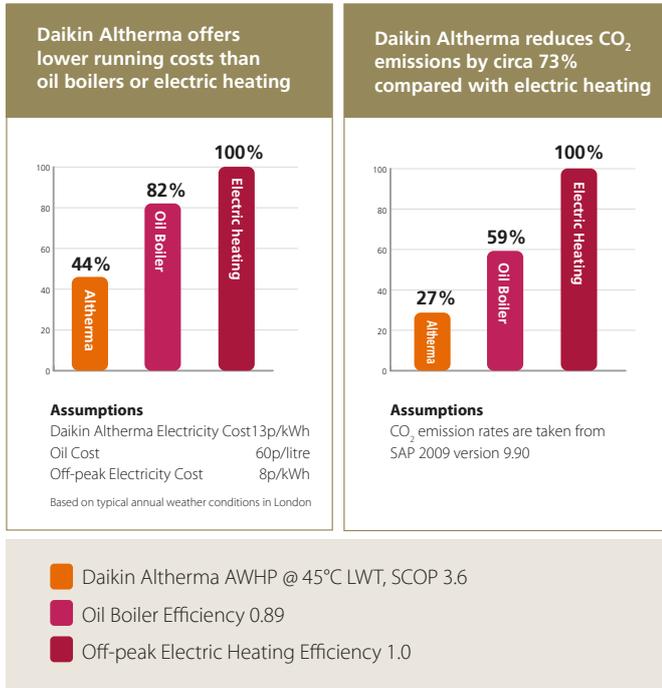
## Renewable Heat Incentive

The planned Renewable Heat Incentive (RHI) is expected to offer funding assistance for systems generating heat from renewable sources. In addition to significant running cost savings that renewables already offer when compared with fossil fuel heating systems, the financial boost of the RHI will help to encourage demand for renewables. And by allocating part of the funding specifically for social housing, the RHI will drive demand for renewables in this sector too.

<sup>1</sup>ERHQ011BV3 – tested in accordance to EN 14511 at A7 W35

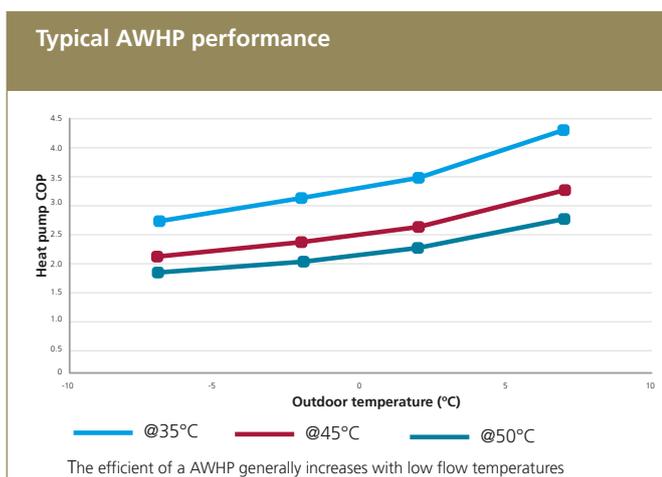
# Why choose Daikin renewable energy solutions?

Daikin heating systems are more than capable of delivering all of a homes heating and hot water requirements from renewable sources throughout the year – even when the outside temperature is -20°C.



## Reduce running costs with renewables

Daikin Altherma is a domestic heating and hot water system based on air-water heat pump technology, which generates up to 70% of the heat free from the air and represents a highly energy-efficient alternative to oil, LPG and electric storage systems. As a result, Daikin heat pumps can offer efficiencies up to 3 times higher than a fossil fuel boiler, so they will typically save on running costs compared with old oil and LPG boilers.



## Minimise the environmental impact of heating

Daikin Altherma low temperature heat pumps deliver some of the very highest efficiencies available in the market today. Capable of achieving a Co-efficient of Performance (COP) of up to 4.38<sup>1</sup> when installed correctly, Daikin Altherma LT systems are more efficient than traditional boilers and reduce the environmental impact of new homes, minimising carbon emissions.

## Suitable for all kinds of developments

Daikin provides a full range of heating and renewable energy solutions, which are scalable and can be configured in different ways according to your particular requirements. Daikin's comprehensive range of high and low temperature air-water heat pumps and solar thermal systems are suitable for all kinds of new build projects – whether private developments or social housing schemes. And with capacities from 6kW to 44.8kW, you'll find a system suitable for every size of property, from small terraces to large detached homes and even whole apartment buildings.

## MCS Certification

Daikin Altherma air-water heat pumps are certified by the Microgeneration Certification Scheme (MCS)<sup>\*</sup>, providing reassurance that products and services provided meet rigorous and consistent Government standards. MCS accreditation is a mandatory standard in Government initiatives such as the proposed RHI, so it's important that developers specify MCS accredited products to ensure compliance with any forthcoming funding schemes.

<sup>\*</sup>Please check the MCS website for the latest list of up to date accredited Daikin heat pumps

## Improved ratings in SAP Calculations

Some Daikin Altherma products are also included in the SAP (Standard Assessment Procedure) Appendix Q, which provides specific energy performance ratings of individual products. This means that homes using listed products will reflect the higher performance of those specific heat pumps and achieve better SAP ratings.

<sup>1</sup>ERHQ011BV3 - tested in accordance to EN 14511 at A7 W35

# Optimum versatility for new developments

Whether you're developing high density social housing, or luxury homes that require fully integrated solutions, Daikin Altherma Low Temperature products are ideal for all kinds of new build projects that are well insulated by design.



## Low Temperature Split System

The Daikin Altherma LT Split system offers complete flexibility for new build homes, with indoor and outdoor units that can be positioned flexibly to suit any property layout. This highly efficient low temperature system delivers water flow temperatures of up to 55°C<sup>1</sup> and, when designed with low flow temperatures of 35°C, the heat pump is capable of achieving high COPs of up to 4.38<sup>2</sup>:

### Indoor options

- > The wall hung indoor units can be sited flexibly with a separate hot water cylinder in 150, 200 and 300 litre capacities
- > Alternatively, a floor standing indoor unit is available with an integrated hot water cylinder above in 200 and 260 litre capacities



### Outdoor options

- > Heat pump units are available in 6 – 16kW capacities
- > ERLQ-C-series units are designed for severe weather, offering higher capacity at low ambient conditions
- > The outdoor unit can be sited up to 30 metres from the property – and as far as 75m away for larger (11-16kW units)

## Low Temperature Monobloc System

Ideal for tight spaces and smaller properties, the Daikin Altherma LT Monobloc system delivers water flow temperatures of up to 55°C<sup>1</sup> and, when designed with even lower flow temperatures of 35°C, the heat pump can achieve COPs of up to 4.38<sup>3</sup>.

### Inside Indoor requirements

- > No hydraulic indoor unit is required, so the Monobloc is ideal where space is restricted
- > For a small Monobloc, an indoor wiring centre is required and optional back up heater is available for peace of mind
- > Separate hot water cylinder available in 150, 200 and 300 litre capacities

### Outdoor unit

- > Plug and go solution: only power and hydraulic water connections required to the outdoor unit
- > All main hydraulic components are located in outdoor unit, reducing the additional components needed indoors
- > Heat pump circuit is in sealed outdoor unit, so no refrigerant handling is required
- > Heat pump units are available in 6 – 16kW capacities:



<sup>1</sup>Achieved by size 11, 14 and 16 heat pumps at specified ambient temperatures

<sup>2</sup>ERHQ011BV3 - tested in accordance to EN 14511 at A7 W35

<sup>3</sup>EDHQ011BB6V3 - tested in accordance to EN 14511 at A7 W35

# Integrated Solutions

A heat pump system can connect to solar thermal panels to create a complete renewable energy solution that provides up to 60% of the hot water needs for an average household over the year



## Solar thermal

### Daikin solar panel:

- > High efficiency flat plate panels for maximum solar gain
- > Quick and easy installation with a variety of installation kits
- > Robust panel design with toughened glass for peace of mind
- > Highly insulated (50mm) for improved efficiency
- > Solar keymark certified
- > 10 year panel warranty

### Daikin solar system:

- > Available in pre-defined packs for easy ordering
- > Intelligent control to optimise solar energy usage
- > Automatic and controlled solar pump speed for maximum efficiency
- > Can be retrofitted to existing Daikin heat pump installations



Hot water cylinder and solar connection kit for use with low temperature heat pump

Daikin also offers integrated solutions for heat delivery, which offer energy-efficient alternatives to traditional systems.

## Underfloor heating

ROTEX Underfloor Heating is designed to work seamlessly with the Daikin heating range and helps to increase the efficiency of a heat pump system. It can be used under virtually any floor covering, for optimal design versatility and easy installation.

## Heat Pump Convectors

Provide both heating and cooling if required and are designed to operate at low flow temperatures (35°C) to optimise the efficiency of a heat pump system.



A compact alternative to radiators, they deliver ample heat with super quiet, draught free operation and each convector can be controlled remotely to maintain the perfect comfort levels.

## Case Study

# Integrated solutions for luxury developments

The Watermark Development in the Cotswolds comprises 50 luxury holiday homes fitted individually to the owners' specifications with Daikin Altherma integrated solutions for heating, hot water and summer cooling.



**Homes in the Watermark Development are designed to high environmental standards with a quality finish, so a heating and hot water system was required that would offer consistent and controlled comfort in both summer and winter.**

In order to meet the desired eco standards, it was important that the properties complied with the latest requirements of the Building Regulations Part L and achieved at least Level Three of The Code for Sustainable Homes, without requiring gas mains for heating. A Daikin Altherma 16kW unit was specified for each home, which would provide hot water as well as heating in the colder months and optional cooling in summer.

### System overview

- > Daikin Altherma LT split outdoor unit located unobtrusively on the external side wall
- > Indoor Hydrobox unit and hot water cylinder positioned conveniently in utility area
- > Underfloor heating provided on the ground floor and in each bathroom
- > Each bathroom also has its own heated towel rail.
- > Hot water is produced by a 300 litre Daikin Altherma hot water cylinder
- > Fresh air is circulated via a series of ceiling vents
- > Daikin VAM heat recovery system continuously recovers heat from expelled stale air and transfers it to warm incoming fresh air

Compared with a traditional boiler system, the Daikin units specified in the Watermark Development are expected to cut energy costs by up to 40%. Watermark has been so impressed that they are recommending the Daikin Altherma heating, hot water and cooling system for all their new properties.

## Case Study

# Carbon-Neutral: Velux CarbonLight Homes



**Daikin's air-water heat pumps were chosen to deliver heat to the VELUX CarbonLight Homes project, a carbon-neutral development at the forefront of sustainable housing.**

VELUX's CarbonLight Homes are among the first homes in the UK designed to the new Government definition of zero carbon.

These houses were designed from the ground up to zero carbon standards, delivering a minimum 70% reduction in carbon emissions on-site, with the remaining 30% of carbon emissions offset by funding energy saving improvements to existing local authority housing stock.

The scheme aims to set a benchmark for future sustainable housing in both the private and social housing sectors. VELUX worked with Daikin to select the most appropriate and efficient heating solution: an 8kW Daikin Altherma Low Temperature Split system for each house.

The completed homes are proof that it is possible to build energy efficient, sustainable housing that is practical, appealing and comfortable for the tenant, while being easy and affordable for the volume house builder to replicate.

**Paul Hicks** of VELUX said: *“We have been extremely fortunate to have worked with such a substantial number of well-respected specialists within the sustainable construction industry, such as Daikin. Their support has been vital to the success of the project, ensuring that the homes achieve a carbon-neutral status, while using renewable technologies along with high levels of daylight and natural ventilation to promote the health and well-being of the occupants and minimise energy use. ”*

# World first solution for luxury apartments

The award winning Daikin Altherma Flex Type air-to-water heat pump is a world-first renewable energy system that's ideal for contemporary apartment schemes.

## The 3-in-1 system

- > Heating: delivers leaving water temperatures up to 80°C
- > Domestic hot water: provides cylinder temperatures up to 75°C
- > Optional cooling: offers leaving water temperatures down to 5°C. (de-centralised, some models only)
- > In-built heat recovery can increase efficiencies further by helping to heat domestic hot water using free reclaimed heat

## Centralised System



The indoor units can be located together in one central plant room to create a centralised system suitable for a wide range of large domestic applications. The centralised indoor units offer modular system scalability and capacity to meet the heating demand of the overall building.

<sup>1</sup>Compared with an oil boiler. Data calculated taking in account Belgian conditions: SCOP of 3, average energy prices 2007- 2010, CO<sub>2</sub> emission factor for electricity production

## De-Centralised System

Alternatively, Daikin Altherma Flex Type can be configured as a decentralized heating system, so that the indoor units are positioned for individual properties and can be controlled and billed individually. This offers the perfect renewable energy solution for apartments, significantly reducing running costs and carbon emissions, delivering<sup>1</sup>:

- > Up to 35% reduction in primary energy use
- > Up to 36% lower running costs
- > Up to 71% reduction of CO<sub>2</sub> emissions



Daikin Altherma Flex Type has been awarded:

- > Ground and Air Source Power award at the Rushlight Awards 2011



- > Innovation Award for Environmental Technology at the Environmental and Energy Awards 2011



- > Product Innovation of the Year at the National Heat Pump Awards 2011



# Trust in Daikin



## Support at all stages

As part of our commitment to ongoing service and quality, Daikin offers pre-sales and after-sales support and advice at all regional offices.

## Design Assistance

Daikin Altherma selection software identifies the heating system required for a particular property and its typical running costs, energy consumption and CO<sub>2</sub> savings. By entering the details about the project, including the heat loss data and geographical location, the software will aid the specifier in selecting the most efficient Daikin Altherma solution for the application. Daikin can also provide a range of typical system schematics and a heat loss calculation tool to help specifiers select the best system for your requirements.

## Training for best practice

As part of Daikin UK's commitment to quality, we offer customised product training at our industry leading technology centres in Birmingham, Bristol, Glasgow, Manchester and Woking. These training courses are designed to raise standards, set industry benchmarks and help to develop both product and service expertise to support best practice in the industry.

## Investment in skills

Daikin partners with specialist technical colleges – City of Bath College, College of North West London, Dudley College and West Suffolk College. This investment in the very highest standards of skills training ensures that Daikin trained heating engineers have the necessary expertise to deliver the highly energy efficient heating systems on which affordable housing will depend.

## Daikin product warranty

Daikin offer industry leading comprehensive warranties for extra peace of mind supported by our nationwide network of engineers. Daikin Altherma heat pumps come with a 3-year parts and labour warranty and Daikin solar panels come with a 10-year warranty with 3-year warranty on other solar components. For full details see [www.daikinheating.co.uk/for\\_homeowners](http://www.daikinheating.co.uk/for_homeowners)

## Comprehensive support service

Daikin UK offers comprehensive service support for all heating and renewable products.

- > Expert and experienced advice
- > Dedicated technical helpline for warranty calls
- > Local fast response
- > Nationwide network of Daikin trained service engineers
- > Comprehensive warranty offer

*All service offerings are subject to our terms and conditions, these can be found on our website [www.daikinheating.co.uk/service](http://www.daikinheating.co.uk/service)*

## Find an installer

We can help to find certified installers local to your project. The Find an Installer tool on [www.daikin.co.uk](http://www.daikin.co.uk) provides a database of MCS certified installers, searchable by postcode.

## Contact Details

### Pre-sales enquiries

Please contact your local regional sales office

### After sales technical support

0845 641 9200 / 0845 641 9277

### Warranty

0845 641 9275

### Training

0845 641 9260



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MCS HP0006

Visit [www.eca.gov.uk/etl](http://www.eca.gov.uk/etl) and type 'Daikin' in the quick search box for details of the latest ECA qualifying Daikin units



Daikin Europe N.V. participates in the Eurovent Certification Programme for Air Conditioners (AC), Liquid Chilling Packages (LCP) and Fan Coil Units (FC); the certified data of certified models are listed in the Eurovent Directory. Multi units are Eurovent certified for combinations up to 2 indoor units. VRV products, Rooftops, FWB-J and FWD-units are not within the scope of the Eurovent Certification Programme.



Daikin units comply with the European regulations that guarantee the safety of the product.

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