

LOW TEMPERATURE HEATING SYSTEM



**Changing the way
we heat our homes**

Renewable
Energy from
Ambient
Air

COP of 4.5
at Water
Flow Temp
35°C

Guaranteed
Efficient
Operation
to -20°C

Substantial
Saving on
Energy
Bill

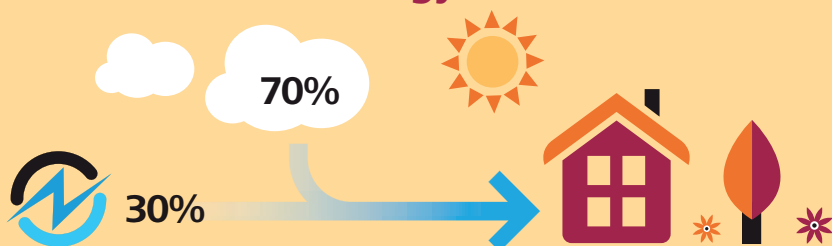
CO₂
Emission
Reduction

Europe's
No.1
Selling
Heat Pump

No Carbon
Monoxide
Production

WHAT IS A HEAT PUMP?

70% of heat is generated free from renewable energy



A heat pump simply moves heat, extracting the latent heat from the outside air and transferring it into the

water of the central heating and hot water system. Basically, it works like a refrigerator, but in reverse!

COP (Coefficient of Performance) or gain factor

The COP indicates the amount of usable heat the heat pump delivers for every kWh electricity the heat pump uses. This number is dependent on the interior and exterior temperature and is therefore only a snapshot indicator. SPF (Seasonal Performance Factor) or performance factor of the heat pump system The SPF takes into consideration both the energy consumption of the heat pump system as well as the consumption by peripheral equipment, such as pumps, over the entire heating season.

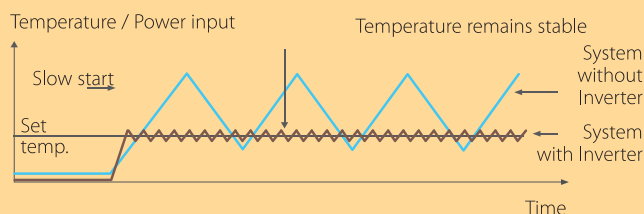
Inverter control means

EVEN MORE SAVINGS!

The inverter constantly adapts your system to actual heating demand. No need to fiddle with settings: the programmed temperature is optimally maintained regardless of outdoor and indoor factors such as the amount of sunlight, the number of people in the room, etc.

This results in unmatched comfort, prolonged system life since it's only in operation when needed, and 30% additional savings in energy costs compared to non-inverter heat pumps.

Heating operation:

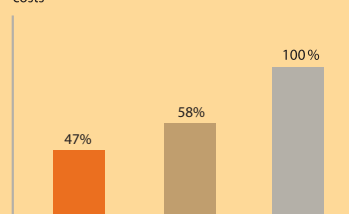


How does a heat pump work?



Simulated Performance

Operating costs

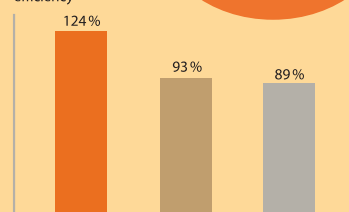


Operating Costs:
Conditions: Required Annual Heating Energy; 20,000kw hours
Source: COP 380%. Boiler efficiency 96%. Oil cost 90c per litre.
Gas cost 5c per kwh. Electricity cost 16c per kwh.

Daikin Altherma air / water heat pump
Gas boiler
Fuel oil boiler

Contact local installer to have tailored report for your dwelling, giving estimated running costs.

Primary energy efficiency



LOW PRIMARY ENERGY CONSUMPTION
Conditions: for combustion systems the PEE indicated the overall efficiency of the system, while for heat pumps it is equal to the seasonal performance factor multiplied by the electricity production efficiency which on average is 0.4 in the EU.

1 A heat exchanger contains refrigerant, which is colder than the outside air. As the air passes the exchanger, the refrigerant absorbs the latent heat from the outside air and evaporates.

2 The vapour passes into the compressor and is compressed, increasing its pressure and temperature, effectively concentrating the heat.

3 Hot vapour is condensed in the second heat exchanger where heat is rejected and the vapour condenses back into a liquid. The rejected heat passes into the central heating and hot water system, ready for use in the home.

4 The liquid refrigerant passes back through an expansion valve, ready to start the cycle again.

Daikin Altherma range is also the first to achieve the Quiet Mark from the Noise Abatement Society (NAS). Daikin is the first heat pump manufacturer to receive this recognition in the UK, which proves that Daikin Altherma products operate at very low sound levels comfortable for human hearing tolerances.



HOW YOUR HOME IS HEATED

Low Temperature Heat Emitters

Low Temperature emitters with new build houses change the way we perceive heating. Moving towards a more constant temperature throughout the house with a more comfortable feeling. Traditionally standard radiators were supplied with High Temperature water at 60 - 80°C giving bursts of heat while the fabric of the building leaked this expensive energy.

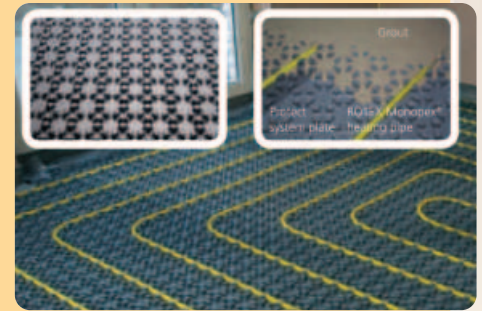
New builds are now better built with higher grades of insulation and airtightness levels creating less of a demand and a more comfortable living atmospheres.

Ideal Solution: Underfloor

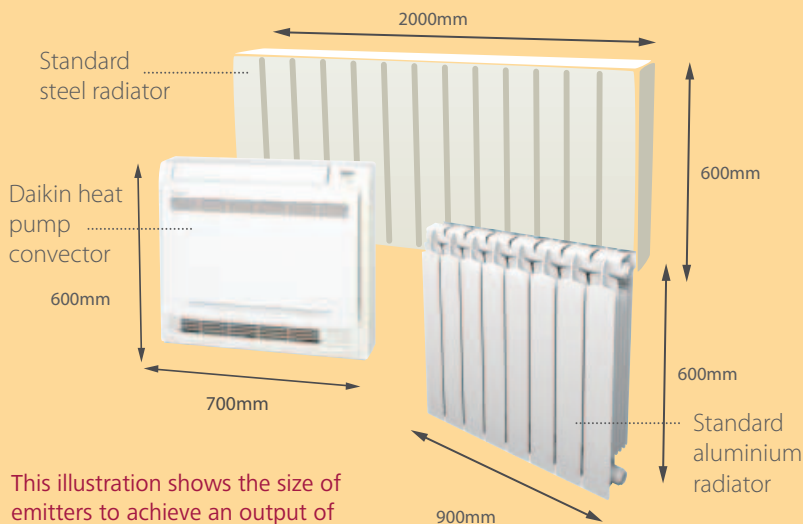
Simple Installation: easy to lay and allows optimal versatility of design in individual rooms

- Balanced temperature distribution and lower levels of air circulation
- Good heat insulation properties
- Easy and variable room temperature control
- Uniform temperature profile through precise pipe conduction
- Cosiness: The high heat radiation level, the low surface temperature and the large heating area provide for an extremely comfortable room climate

When underfloor is designed and installed correctly, with one of our approved installers, a flow temperature of 35C or less creates the optimum efficiency from the heat pump.



Heat Pump Convactor Solution



This illustration shows the size of emitters to achieve an output of 1KW with a flow temperature of 45°C

Daikin's Heat Pump Convectors are designed to work at lower water temperatures, such as 40°C in heating, which enables the Daikin Altherma heat pump to operate at optimum efficiency. Heat pump convectors can provide both heating and cooling if required and can be used with the Daikin Altherma heat pump to offer a compact and highly efficient solution.

These fan coils can easily replace existing heat emitters:

- Deliver ample levels of heat, even at low water temperatures
- Offer remote control of each convector, for easy control of room temperature, fan speed, automatic or night mode, rapid heating or cooling and weekly timer
- Able to heat and cool
- Compact size
- Very low noise levels 19 dB(A), optimal for bedrooms
- Individual room control offering to flexibility and comfort
- Can be installed against a wall or recessed
- Intelligent integration with Daikin Altherma
- Savings on running costs

Daikin System Can Incorporate Solar

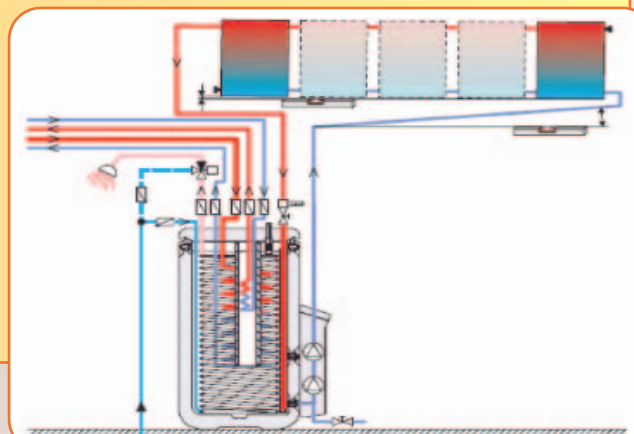
Solar Collectors

Averaged over an entire year, the sun delivers half of the energy we need to bring our domestic hot water up to the desired temperature.

High-efficiency collectors with highly selective coating transfer all the short-wave solar radiation into heat. The collectors can be mounted on roof tiles. Daikin Heat Pumps can be integrated to both pressurised and unpressurised solar systems.

Daikin's Drainback System

- The solar collectors are only filled with water when enough heat is provided by the sun.
- In this case, pumps in both the control unit and the pump unit switch on and fill the collectors with water from the thermal store in less than a minute.
- Daikin thermal store
 - Highly efficient, stratified thermal store for hot water
 - Highly insulated (80mm)
 - No antifreeze required – higher efficiency and lower maintenance
 - Solar energy held within the store can also be used for heating support
 - Up to 800 litres of hot water before re-heat required.



Low Temperature Systems – Split System

The Daikin Altherma LT Split system offers complete flexibility for both new build and refurbishment projects, where a water temperature of up to 50°C is sufficient.

System elements

Solar thermal system

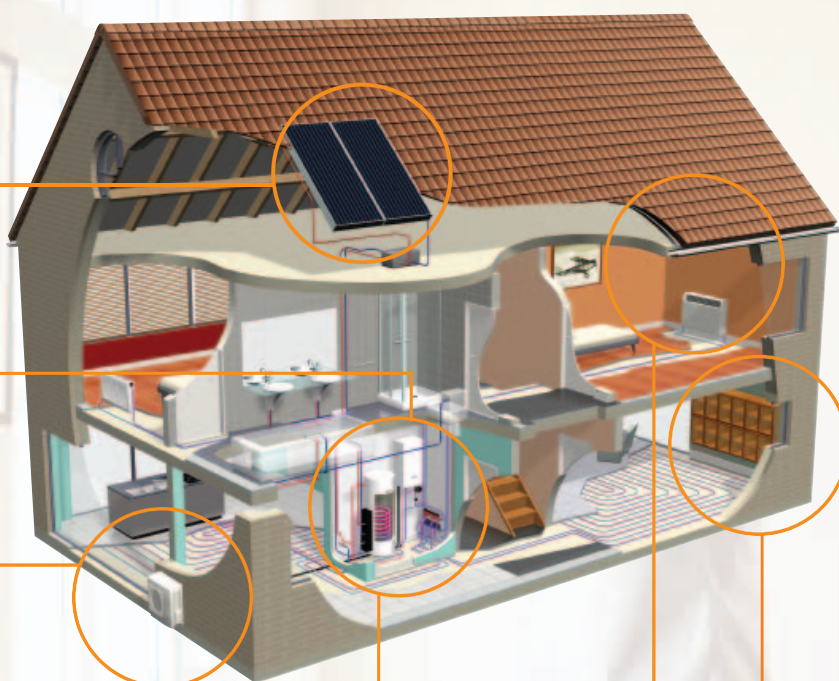
The low temperature system also offers the option of being connected with an indirect pressurised solar thermal system to create a fully renewable system.

Indoor Unit

The wall hung indoor unit, or hydrobox, generates water temperatures of up to 50°C for use with heating emitters and for hot water production.

Outdoor unit

The outdoor unit extracts heat from the outside air and transfers it to the indoor unit via refrigerant piping. The outdoor unit can be located up to 70 metres from the indoor unit.



Hot water cylinder

The hot water cylinder is specially designed to maximise hot water supply and comes in three sizes: 150, 200 and 300 litres.

Heat emitters

The low temperature system can work with low temperature radiators, underfloor heating, fan coils or heat convectors. Fan coils and heat convectors, which can provide both heating and cooling if required.

Stylish design

The Daikin Altherma LT Split system is now also available with integrated design.

- Floor standing indoor unit.
- Provides installation benefits to installers and homeowners.
- Cylinder can be mounted on top of the indoor hydrobox, saving space inside the house.
- Quicker installation time
- Improved cylinder efficiency and performance.



New outdoor unit models on 11-16kW come with added features:

- Extended operation range on single phase units, for higher COPs and energy savings
- Hot gas de-icing
- Improved efficiency of domestic hot water production
- Tank temperature up to 55°C by heat pump only.
- Increased capacity at low ambient conditions



11-16kW Outdoor Unit

Low Temperature Systems – Monobloc System

When there are internal space constraints, the Daikin Altherma LT Monobloc system offers a perfect solution as it combines all the main hydraulic components in a single outdoor unit, and no refrigerant handling is required.

System elements

Solar thermal system

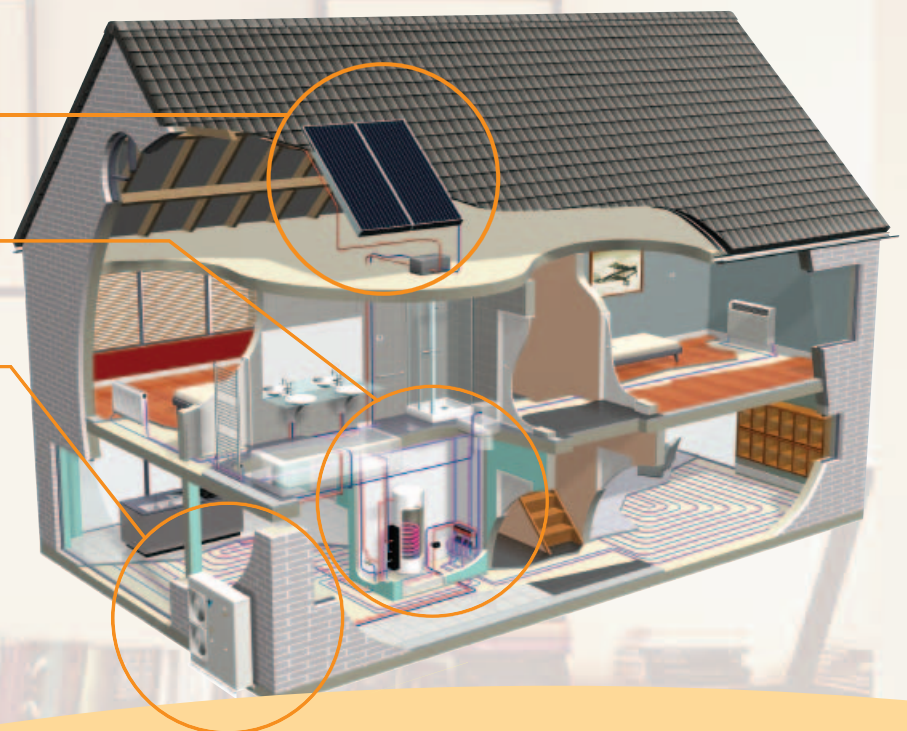
Optional connection with solar panels to create a fully renewable system

Hot water cylinder

No indoor unit required
– only hot water cylinder

Outdoor Unit

Simplified installation, as it requires only power and water connections. Sealed refrigerant circuit.



Daikin's Altherma LT Monobloc is now available in 6kW and 8kW capacities, ideal for small properties, extending the existing range:

- Quick installation
- Simplified wiring
- All hydraulic components included in the unit
- Connects with solar thermal systems to create a completely renewable solution for even greater energy savings
- Plug and play solution for tight spaces requiring smaller capacities



6-8kw Outdoor Unit



11-16kw Outdoor Unit

Daikin Altherma

CHANGING THE WAY WE HEAT OUR HOMES

NOW IT IS TIME TO RETHINK THE WAY WE HEAT OUR HOMES AND HOT WATER.
CENTRAL HEATING SYSTEMS AS WE KNOW THEM TODAY ARE CHANGING DRAMATICALLY.

Daikin Altherma Advantages over Traditional Boiler Systems

- 3 to 5 times more efficient
- Advanced Energy Saving Features
 - Weather compensation built in as mstandard
 - Inverter Technology
- 30 – 50% reduction in CO2 emissions
- Low running and maintenance costs
- Low noise – unobtrusive and quiet
- Easy to install, no groundwork i.e. trenches or boreholes
- Ideal for off gas grid properties
- Single phase power supply with low starting current
- Flexible, can be connected to underfloor heating, radiators or fan coils
- As a package of energy saving measures, helps towards higher rating in the Code for Sustainable Homes
- Can be connected with a solar thermal system which can provide 60% of your hot water needs.

✓ Daikin: your reliable partner

Daikin is the specialist in climate conditioning systems – for private homes as well as for large commercial and industrial spaces. We make every effort to ensure that your customers are 100% satisfied.

✓ High-quality, innovative products

Innovation and quality are constantly at the forefront of Daikin's philosophy. The entire Daikin team is continually trained to provide you with optimal information and advice.

✓ A clean environment

In producing your customer's climate control system, we strive for sustainable energy consumption, product recycling and waste reduction. Daikin rigorously applies the principles of eco design, thus restricting the use of materials that are harmful to our environment.

CASE STUDY: CASE STUDY: Detached Bungalow 90m² Westport, Co. Mayo **6KW Split**

Mayo West County Council re-house scheme have taken the right steps of moving into the forefront of sustainable housing.

With the help of Daikin Europe NV the heating and domestic hot water of this 90m² bungalow in Westport are managed and kept to a minimum cost through the use of an Altherma air-to-water Heat pump.



The total electrical bill averages around €1.50 per day (including cooking, lighting & etc.)

With a heating load of 4kw this Altherma Bi-bloc system was the ideal choice for this dwelling using low temperature radiators and a 150L hot water cylinder.

The flexibility of the split system let the outdoor unit be installed anywhere on the outside of the building. In this case on the gable wall out of reach of anyone.



CASE STUDY: Detached House 336m² Barna, Co. Galway

16KW Monobloc



As the owner was conscious of the environment and cost impact of building a large house, he enlisted the help of a building services engineer from the start. This insured that the build quality would be up to a high standard minimising the energy consumption of the house.

Through good work practice and high quality products (i.e. passive standard windows) the heat loss was kept to a minimum. The overall floor area for this dwelling is 336m² (ground 166m², 1st floor 123m², 2nd floor 47m²). Underfloor heating was installed throughout the house heated by a 16kw monobloc heat pump and 300L domestic hot water tank.

The owner moved in on the beginning of December 2010, at sub zero temperatures, the Heat pump brought the house up to temperature and maintained it comfortably throughout the extreme winter conditions.



A3 Energy Rating

Pre-plastering air leakage test;
2.7(m³/hr)/m² @ 50 Pa

U-Values were:
Wall 0.19W/m²K,
Roof 0.13W/m²K,
Floor 0.15W/m²K,
Glazing 0.8W/m²K



NOW IT IS TIME TO RETHINK THE WAY WE HEAT OUR HOMES AND HOT WATER.
CENTRAL HEATING SYSTEMS AS WE KNOW THEM TODAY ARE CHANGING DRAMATICALLY.

CASE STUDY: House 245m² Tralee, Co. Kerry

14KW Split



This detached house was block built with a 60mm cavity with an internal insulated slab, double glazing and standard timber roof.

The installation included a 14kw Split unit. Including an outdoor unit and wall hung indoor with 300L tank. Solar panels were connected through the Daikin Solar kit to assist hot water production.

The house is heated by underfloor and zoned with individual room control.



Total Electrical Consumption

(including all domestic)

Total €1,041

TESTIMONIAL: John O'Brien, Home Owner

"My Daikin altherma heat pump was installed last summer. It performed very well at heating the house during the subzero temperatures of last winter. In combination with high spec insulation, underfloor heating and solar water heating the system has led to very reasonable electricity bills. The indoor unit is very silent in operation and required no adjustment once the engineer set up the parameters initially. All in all I'm happy to have moved away from a fossil fuel based system and I am confident that the running costs will remain low and that maintenance will be minimal."

Is your house a slave to oil?



BREAK FREE!

SAVE UP TO 70% ON YOUR ANNUAL HEATING BILL!

Change to

DAIKIN
altherma



B/31/1

Daikin Altherma was the first heat pump to be awarded the European eco label.

FOR MORE INFORMATION, CONTACT YOUR LOCAL DAIKIN DEALER, VISIT WWW.DAIKIN.IE OR SEND AN E-MAIL TO INFO@DAIKIN.IE

Daikin Commercial Office, Unit 1, Oakfield Business Centre, Oakfield Way, City West, Dublin 12
T: +353 (0)1 642 3430 - F: +353 (0)1 642 3433

- Guaranteed efficient operation to -20°C
- CO₂ emission reduction
- No carbon monoxide production
- Europe's no.1 selling heat pump