



FREQUENTLY ASKED QUESTIONS

THE SUSTAINABLE HOME HEATING SOLUTION

THE ENERGY EFFICIENT HEATING SYSTEM



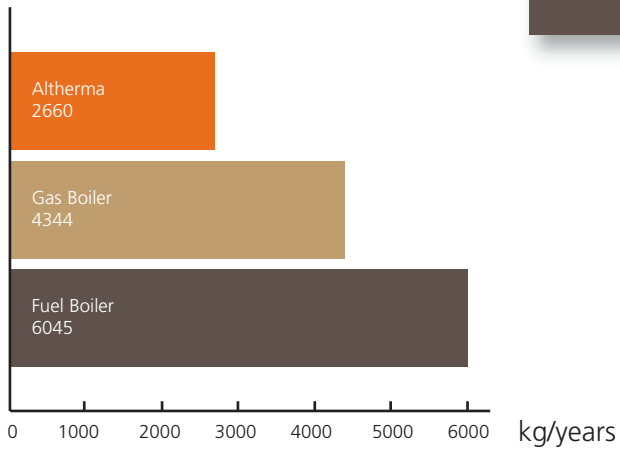


WANT TO KNOW MORE?

If you want to know more,
or your question isn't
answered in this booklet
please visit

www.altherma.co.uk or;
email altherma@daikin.co.uk

AVERAGE ANNUAL CO₂ EMISSIONS



Calculations based on data provided by Eurelectric (Union of the electricity industry), 'Eurelec Program - 2001' for EU27

WHAT FUNCTIONS CAN ALTHERMA PROVIDE?

SPACE HEATING, DOMESTIC HOT WATER AND COOLING.

IS THE HOT WATER FUNCTION ALWAYS INCLUDED?

Yes, but you need a Daikin hot water tank to make it operational.

WHY DO I NEED A DAIKIN HOT WATER TANK?

The Daikin hot water tank contains specially designed and positioned heating elements and sensors which are critical to effective operation.

IS THE COOLING FUNCTION ALWAYS INCLUDED?

No, the cooling function is an option and only available on the reversible version of the hydrobox.

IS IT POSSIBLE TO COMBINE ALTHERMA WITH THERMAL SOLAR TUBES FOR DOMESTIC HOT WATER HEATING?

Yes, Daikin offer an integrated solar connection kit.

CAN I UPGRADE A HEATING ONLY VERSION OF THE HYDROBOX TO A REVERSIBLE WITH COOLING?

No, this is not possible. The reversible hydrobox has extra insulation on the pipes because of condensation. There is also a software difference between the two models.

WHAT IS THE MAXIMUM WATER TEMPERATURE FROM THE HEAT PUMP?

55°C

CAN I CONNECT RADIATORS TO THE ALTHERMA SYSTEM EVEN THOUGH THE TEMPERATURE IS LIMITED AT 55°C?

Yes, Altherma can be connected to radiators. In many cases, old radiators which are sized for 70°C are heavily over sized and can also be used with a water temperature of 55°C or lower.

IS IT POSSIBLE TO COMBINE RADIATORS AND FLOOR HEATING IN THE SAME SYSTEM?

Yes, but the water temperature must then be adjusted to match the temperature requirement for the radiators.

The temperature in the floor loops must be reduced to a suitable level by the use of a mixing valve or shunt connection. The heat pump capacity and COP will decrease with increasing water temperatures.

IF THE MAXIMUM WATER TEMPERATURE FROM THE HEAT PUMP IS 55°C, HOW CAN I REACH A SUFFICIENT DOMESTIC WATER TEMPERATURE?

Inside the Daikin domestic hot water tank there is an electric booster heater which raises the water temperature from 55°C to a maximum of 80°C. Although a typical storage temperature of 50 to 55°C is sufficient.

CAN ALTHERMA PRODUCE HOT WATER IN SUMMER?

Yes, Altherma can run in hot water mode up to an ambient temperature of 35°C. The heating and cooling version will switch between hot water mode and cooling mode. At outside temperatures exceeding 35°C, hot water can still be produced using the booster heater only.

WHAT IS THE LOWER OPERATION LIMIT TEMPERATURE FOR THE ALTHERMA SYSTEM?

The defined operation limit is -20°C, but the heat pump does not switch OFF at a certain temperature because of a software block. At low outside temperatures, the back up heater will generate additional heating capacity.

WHAT IS A BACK UP HEATER?

The back up heater provides supplementary space heating capacity in addition to the heat pump in severe weather conditions.

WHERE IS THE BACK UP HEATER PLACED?

Inside the hydrobox. All the circulating water passes through the heat exchanger and then through the back up heater cylinder.

WILL THE BACK UP HEATER ALWAYS BE SWITCHED ON?

No, the back up heater will only switch ON if the heat pump can not reach the leaving water set point temperature within a certain time period. When the set point is reached, the back up heater will switch OFF again.

CAN ALTHERMA BE DELIVERED WITHOUT A BACK UP HEATER?

No, this is not possible. The back up heater must be installed to ensure that the water temperature never drops below 15°C during start up of the system or during defrost.

IS IT POSSIBLE TO UPGRADE A LOW CAPACITY BACK UP HEATER TO A LARGER CAPACITY?

No, this is not possible.

WHAT IS THE MAXIMUM WATER TEMPERATURE OUT OF THE BACK UP HEATER?

55°C

WHY IS THE WATER TEMPERATURE LIMITED TO 55°C EVEN THOUGH I AM USING AN ELECTRIC BACK UP HEATER?

The return water temperature to the heat pump is limited to 55°C. A return water temperature above this will activate safety devices and the compressor frequency will decrease.

WILL THE BACK UP HEATER AND BOOSTER HEATER WORK SIMULTANEOUSLY?

The back up heater will never be operational in heat pump hot water mode. Both heaters can be operational if the back up heater is running and the booster heater ON temperature is reached, or if the outdoor unit breaks down and the back up heater has to cover the entire space heating load. The simultaneous operation of the back up heater and booster can be prevented by a field setting.

WHAT IS THE EQUILIBRIUM POINT?

It is the point at which the heat pump capacity matches the heating demand at which no additional heat source is required.

HOW DO I KNOW WHERE THE EQUILIBRIUM POINT IS?

The equilibrium point is not a fixed point. The back up heater will switch ON if the heat pump can not reach the set point water temperature within a certain time period independently of the ambient temperature (as long as the back up heater operation is not disabled by field setting).

WHAT SIZE FUSES DO I NEED FOR THE OUTDOOR UNIT POWER SUPPLY?

Outdoor unit capacity classes 06, 07, 08 require 20A fuses. Outdoor unit capacity classes 011, 014, 016 require 32A fuses.

IS THERE ANY WIRING BETWEEN THE HYDROBOX AND DOMESTIC TANK?

Yes, please refer to installation guide.

ARE THERE SEPARATE POWER SUPPLIES FOR THE ELECTRIC HEATERS AND THE OUTDOOR UNIT?

Yes, please refer to installation guide.

CAN I CONNECT AN SPLIT OUTDOOR UNIT TO A HYDROBOX?

No, this is not possible.

WHAT IS THE MINIMUM WATER CONTENT OF THE SYSTEM?

10 litres for capacity classes 06, 07, 08.
20 litres for capacity classes 011, 014, 016.

IS THERE NEED FOR AN ADDITIONAL BUFFER TANK TO ENSURE THAT THE WATER TEMPERATURE DOES NOT DROP DURING DEFROST?

No, the back up heater will provide the necessary heating capacity if the water temperature drops below 15°C.

WHAT IS THE FACTORY WARRANTY FOR ALTHERMA?

Three years on parts providing ongoing maintenance has taken place.

IS IT POSSIBLE TO INSTALL THE CONTROLLER REMOTE FROM THE HYDROBOX?

No, this is not possible.

IS IT POSSIBLE TO INSTALL THE HYDROBOX OUTSIDE?

No, this is not possible.

WHAT ARE THE MAIN OPERATION FUNCTIONS ON THE CONTROLLER?

The controller has several levels, and many settings are set at installation (installer settings). The main user settings are:

- ON/OFF
- Space heating operation
- Space cooling operation
- Water heating operation
- Silent mode operation
- Temperature set point adjustment
- Powerful water heating mode
- Schedule timer programming.



WHAT IS THE SCHEDULE TIMER?

The schedule timer allows the user to set the operation of the system according to a daily or weekly program:

- Switch ON/OFF the installation at a scheduled time, in combination with a set point temperature for space heating/cooling program.
- Switch ON/OFF the installation at a scheduled time for water heating program, booster heater program or silent mode program.

CAN I USE SEPARATE ROOM THERMOSTATS AND PROGRAMMABLE TIMERS?

Yes, separate controls can be used to control the room temperatures, these will tell the Altherma system when the room requires heating/cooling. Altherma will then operate to achieve the set flow temperature.

WHAT IS THE AUTO RESTART FUNCTION?

The auto restart function reapplies the user interface settings when the power returns after a supply failure.

IS THE AUTO RESTART FUNCTION DEFAULT ON?

Yes, and it is recommended to leave it enabled.

WILL THE SCHEDULE TIMER BE REACTIVATED WHEN THE POWER RETURNS AFTER A POWER SUPPLY FAILURE?

The schedule timer will be reactivated when the power returns after a power supply failure if the auto restart function is enabled.

WHAT HAPPENS TO THE CLOCK WHEN A POWER SUPPLY FAILURE OCCURS?

A power failure exceeding one hour will reset the clock.

WHAT HAPPENS TO THE SCHEDULE TIMER IF THE CLOCK IS RESET?

The schedule timer will continue operation, however the clock will need to be reset to reflect actual time.

WHICH OPERATIONAL MODE HAS PRIORITY?

The system will work according to the largest temperature difference between actual water temperature and set point. If Altherma is running in space heating it will immediately switch to domestic if the temperature difference in the tank is larger than the temperature difference for space heating. When the system is running in hot water mode the set point must be reached before the system switches back to space heating mode.

WHY DOESN'T THE BOOSTER HEATER SWITCH ON IMMEDIATELY WHEN THERE IS A REQUEST FOR HOT WATER?

It is desirable to let the heat pump cover as much of the hot water production load as possible with high COP. The booster heater delay ensures that the booster heater is not used more than necessary.

WILL I STILL HAVE SUFFICIENT CAPACITY OF HOT WATER EVEN IF THE HEAT PUMP OR BOOSTER HEATER DOESN'T SWITCH TO HOT WATER MODE IMMEDIATELY?

Yes, Altherma is not based on instant water heating like a gas boiler. The tank has a storage volume of 150-300 litres of hot water which will cover the load whilst the system switches to hot water mode.

HOW DOES THE COMPRESSOR OPERATE IN HOT WATER MODE?

The compressor will run at highest frequency and 55°C.

WHAT IS A FLOATING SET POINT (WEATHER COMPENSATION)?

When the floating set point functionality is enabled, the set point for the leaving water temperature will be dependant on the outside ambient temperature. At low outside ambient temperatures, the leaving water temperature will increase to satisfy the increasing heating requirement of the building. At warmer temperatures the leaving water temperature will decrease to save energy.

WHAT ARE THE BENEFITS OF A FLOATING SET POINT?

The floating set point ensures that the heat emitter temperature is never higher than necessary and this leads to the highest possible comfort level. A heat pump requires more energy input the higher the water temperature, which means that the floating set point also ensures the lowest possible energy consumption.

WHAT HAPPENS TO THE FLOATING SET POINT IF THE SUN SHINES ON THE TEMPERATURE SENSOR?

The set point might deviate and give a lower water temperature than is actually needed. It is recommended to install some type of sun protection above the outdoor unit.

CAN THE TEMPERATURE SENSOR WHICH IS USED TO DETERMINE THE FLOATING SET POINT BE MOUNTED REMOTE FROM THE OUTDOOR UNIT?

No, this is not possible.

CAN I USE THE FLOATING SET POINT IF I INSTALL MY OUTDOOR UNIT IN A GARAGE THAT IS WARMER THAN THE AMBIENT OUTDOOR TEMPERATURE?

No, the floating set point is dependent on the temperature sensor in the outdoor unit. If the outdoor unit is installed in a warm place, a fixed set point temperature must be used.

WHAT IS AN INVERTER COMPRESSOR?

An inverter compressor will gradually increase or decrease its capacity based on the duty needed to cool down or heat up the room.

WHAT ARE THE BENEFITS OF AN INVERTER COMPRESSOR?

- The comfort temperature is reached much faster.
- The start up time is reduced by one third.
- Thirty percent less power consumption.
- There are no voltage peaks.
- The heat exchangers become over sized in partial load which increases the efficiency.
- Additionally, there are no temperature fluctuations.

HOW IS THE COMPRESSOR FREQUENCY CONTROLLED?

Altherma monitors the actual leaving water temperature and has a given set point temperature according to the ambient temperature. The larger the variation between these two temperatures the higher the compressor frequency.

CAN I USE THE FLOOR LOOPS FOR COOLING?

Yes, but it is recommended that a floor loop water temperature of no lower than 18°C is used.

HOW DO I PREVENT THE FLOORS FROM BEING COOLED IF I USE A FAN COIL UNIT FOR COOLING?

The inlet of the floor loop manifold must be closed with a field supplied 2-way valve.

IS IT POSSIBLE TO SET THE SYSTEM TO GIVE AN AUTOMATIC SWITCHOVER BETWEEN HEATING AND COOLING?

No, this is not possible and has to be done manually on the controller or by a remote thermostat if installed.

WHAT HAPPENS WHEN THE SYSTEM SWITCHES BETWEEN MODES?

The system will switch directly between the modes. The maximum installation distance between the 3-way valve and the hydro box is three metres, which means that the water volume is very small compared to the water volume of the rest of the system. The small portion of warm water will mix with the large portion of cold water which means that this will not cause problems.



66 TO 80% FREE OF CHARGE

A heat pump works much more efficiently and saves more energy than a traditional heating system based on fossil fuels. With Altherma, 1kW of electricity consumption generates 3 to 5kW of free heat. That's an investment that pays.



COP (Coefficient of Performance)

Stands for the ratio of the output heat and the energy used by the heat pump compressor. The Altherma heat pump boiler has a COP of 3 to 5, which means that the pump delivers 3 to 5 times more energy than it uses.



CO₂ EMISSIONS

The carbon footprint of a heating system can be calculated by multiplying the energy input by the Green House Gas Conversion Factor. Altherma typically offers CO₂ reductions between 30 to 50% when compared to traditional heating systems.



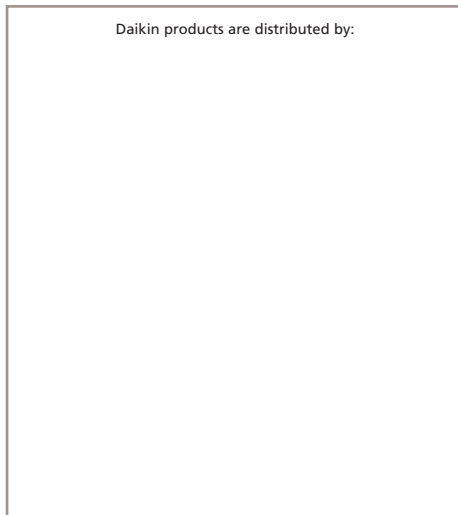
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Daikin's unique position as a manufacturer of heat pumps equipment, compressors and refrigerants has led to its close involvement in environmental issues. For several years Daikin has had the intention to become a leader in the provision of products that have limited impact on the environment. This challenge demands the eco design and development of a wide range of products and an energy management system, resulting in energy conservation and a reduction of waste.



Daikin Europe N.V. is approved by LRQA for its Quality Management System in accordance with the ISO9001 standard ISO9001 pertains to quality assurance regarding design, development, manufacturing as well as to services related to product.



ISO14001 assures an effective environmental management system in order to help protect human health and the environment from the potential impact of our activities, products and services and to assist in maintaining and improving the quality of the environment.



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



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 2 indoors units.

