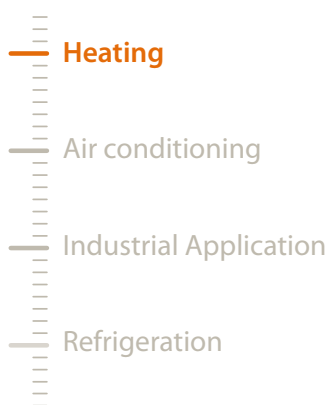


Heating Catalogue

° All seasons
CLIMATE COMFORT



TOP ENERGY EFFICIENT SOLUTIONS FOR RESIDENTIAL USE!

Heating - Domestic hot water - Cooling

The climate is changing. The effects are visible throughout the world and even the speed of this change is increasing. Your customer sees and hears this every day.

To limit the consequences of global warming as much as possible, CO₂ emissions must decrease.

Your customer knows this.

The supply of fossil fuels is finite and this leads to continuously higher fuel prices.

Your customer feels this financial benefit.

Furthermore, your customer wants a heating solution that uses less energy.

Just like you, your customer realises it is time to switch to a heating system that is energy efficient and which produces low CO₂ emissions.

The Daikin Altherma heat pump is a durable energy system that transforms unutilized, and inexhaustible, energy from the outside air into usable heat. Daikin Altherma achieves optimal comfort with its high temperature and low temperature heating systems. Moreover, Daikin Altherma is easy to install.

Daikin Altherma Heat pump



3 BENEFITS

FOR NEW CONSTRUCTIONS

& RENOVATION

> **COST EFFECTIVE
LOW ENERGY CONSUMPTION**

> **REDUCED CO₂ EMISSIONS**

> **FULL COMFORT**



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DAIKIN ALTHERMA, the guarantee for high efficiency and absolute comfort

Daikin Altherma is a total domestic heating and hot water system based on air source heat pump technology. It represents a flexible and cost-effective alternative to a fossil fuel boiler, with a cooling option*. The inherent energy efficiency characteristics of Daikin Altherma make it an ideal solution to reduce energy consumption and CO₂ emissions.

* low temperature heating systems

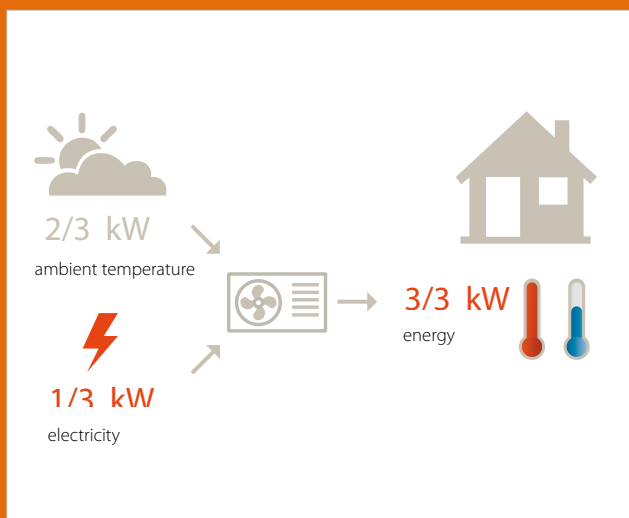
Daikin Altherma heat pumps offer your customers unique benefits:

- > They use renewable energy sources such as outside air
- > They deliver considerable savings in energy
- > They deliver a significant contribution in the fight against CO₂ emissions
- > They can provide heating, domestic hot water with solar connection and cooling

ENERGY EFFICIENT OPERATION

The air/water heat pump from Daikin Altherma uses a sustainable energy source. In fact, it extracts heat from the outside air. The system consists of a closed circuit containing a refrigerant. A thermodynamic cycle is created through evaporation, condensation, compression and expansion. A heat pump “pumps” heat from a low to a high temperature level. The heat raised is transferred to the water distribution system (under floor heating, low temperature radiators and/or fan coil units for low temperature heating systems and high temperature radiators for high temperature heating systems) in the home via a heat exchanger.

Depending on the model and the conditions, an Daikin Altherma air/water heat pump delivers about 3kWh of usable heat for every kWh of electricity it uses. So this means that approximately 2/3 of the required heat is free!



TWO BASIC CONCEPTS OF HEAT PUMP TECHNOLOGY

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.

DAIKIN ALTHERMA ECONOMICALLY

Customers today are, more than ever, conscious of the cost of heating.

There is not only the increasing cost of fuel oil and natural gas, but also the limited supply of fossil fuels and the problem of CO₂ emissions.

Energy efficient heating solutions are gaining in popularity.

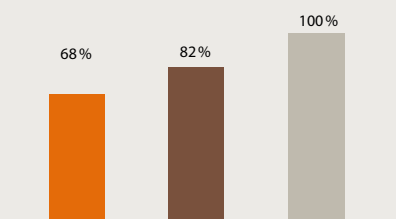
The graphic below illustrates the positive influence of the Daikin Altherma heat pump on energy consumption and in comparison with heating systems which operate on gas or fuel oil.

1/ 66 To 80% Free

A heat pump boiler works more efficiently and saves more energy than a traditional heating system using fossil fuel. Daikin Altherma generates at least 3 kW of free heat per 1kW of electricity used. Talk about a good investment.

OPERATING COSTS:

Conditions: Required annual heating energy: 20,000 kWh. Source: Energy prices based on EUROSTAT statistics [first semester 2007].

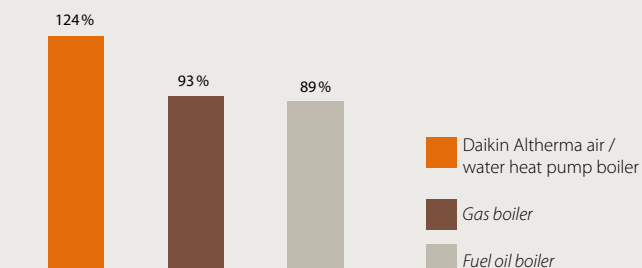


2/ PER (primary energy ratio)

This is the relationship between the useable energy generated and the primary energy consumed, with consideration for the electricity production efficiency and the electricity distribution.

LOW PRIMARY ENERGY CONSUMPTION

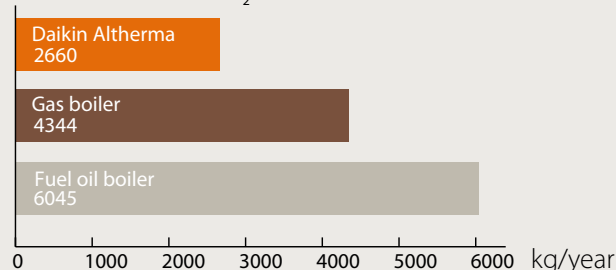
Conditions : For combustion systems, the PER indicates the overall efficiency of the system, while for heat pumps it is equal to the seasonal performance factor multiplied by the electricity production efficiency which on average is 0.4 in the EU.



LOWER CO₂ EMISSIONS

Daikin Altherma produces no direct CO₂ emissions, so you personally contribute to a better environment. The pump does use electricity, but even without renewable electricity the CO₂ emissions are still much lower than boilers that use fossil fuels.

AVERAGE ANNUAL CO₂ EMISSIONS



Calculation based on data from Eurelectric (organisation of European electricity producers), "Eurelec Program - 2001" for EU27



LESS ENERGY, PLEASANT WARMTH IN THE HOME

Daikin Altherma heats up to 5 times more efficiently than a traditional heating system based on fossil fuels or electricity.

By making use of the heat in the outside air, the system uses much less energy while your customer can still enjoy a stable and pleasant level of comfort.

Also, maintenance requirements are minimal making the running cost low. Thanks to the inverter technology, the energy savings are even greater.

MINIMAL INSTALLATION COST

Daikin Altherma takes heat from the air. No digging or excavation works are required. Both the outdoor and indoor units are compact. The external unit can be located easily outside any building, including flats. Without flames or fumes, there is no need for a chimney or constant ventilation in the room where the Daikin Altherma unit is installed.

ABSOLUTELY SAFE

Daikin Altherma works without oil, gas or other hazardous substances – reducing potential risk that goes together. Moreover, you don't need a gas connection or a fuel tank. No risk of intoxication, smell or pollution from leaking tanks.

YOUR CUSTOMER IS BECOMING INCREASINGLY ENVIRONMENT-MINDED

Traditional heating systems that rely heavily on fossil fuels are increasingly coming under scrutiny due to the battle against CO₂-emissions. Stricter European standards regarding heating economy are becoming more relevant.

Since two thirds of the heat generated by the Daikin Altherma system is from a renewable source -the air - this modern technology will satisfy the needs to reduce CO₂ emissions and makes Daikin Altherma the right choice for new boiler installation.



AIR AS RENEWABLE ENERGY SOURCE

The European RES directive* recognises air as a renewable energy source. One of the goals of this directive is that by 2020, 20% of the total energy production needs to be produced with a renewable energy source. As a result, several heat pump incentives are already available to homeowners.

* EU objective COM (2008) /30

RENEWABLE, INEXHAUSTIBLE ENERGY WITH SOLAR COLLECTORS

In combination with solar collectors, Daikin Altherma uses thermal energy from the sun which will keep up its good work for another five billion years.

DAIKIN HEAT PUMP EXPERIENCE

Daikin has more than 50 years of experience with heat pumps, and supplies more than one million of them to homes, shops and offices each year. This success is not just a quirk of fate: Daikin has always been at the cutting edge of technology and its goal is to provide you with turn-key comfort. Only a market leader can guarantee you this level of service and quality control!

ECO-LABEL



Daikin is the first manufacturer to receive the Eco-label for heat pumps!

Daikin Altherma LT with under floor heating received the EU ECO-LABEL* because of its higher energy efficiency and less global warming impact than other heat pump products in its class.

Following models received the ECO-LABEL:

ERHQ006B-EKHBH008B, ERHQ007B-EKHBH008B, ERHQ008B-EKHBH008B, ERHQ011B-EKHBH016B, ERHQ014B-EKHBH016B, ERHQ016B-EKHBH016B, ERHQ006B-EKHBX008B, ERHQ007B-EKHBX008B, ERHQ008B-EKHBX008B, ERHQ011B-EKHBX016B, ERHQ014B-EKHBX016B, ERHQ016B-EKHBX016B.



DID YOU KNOW...?

Daikin has set up a number of monitoring sites (in Scandinavia, Portugal, France, Belgium, ...), where Daikin Altherma has been tested under totally different climate conditions. High satisfaction has been achieved with increased comfort, stable indoor temperature, low energy consumption and hot water always available ... whatever the weather conditions at the monitoring site.



A GOOD DAIKIN ALTHERMA DESIGN IN 3 STEPS

STEP 1



Define the leaving water temperature range of the necessary heat emitters and the heat load.

STEP 2



Calculation of heat losses (Transmission and ventilation losses)

STEP 3

Selection of the Daikin Altherma system based on heat loss calculation.
Tip: Use the available Daikin Altherma selection and software tools.

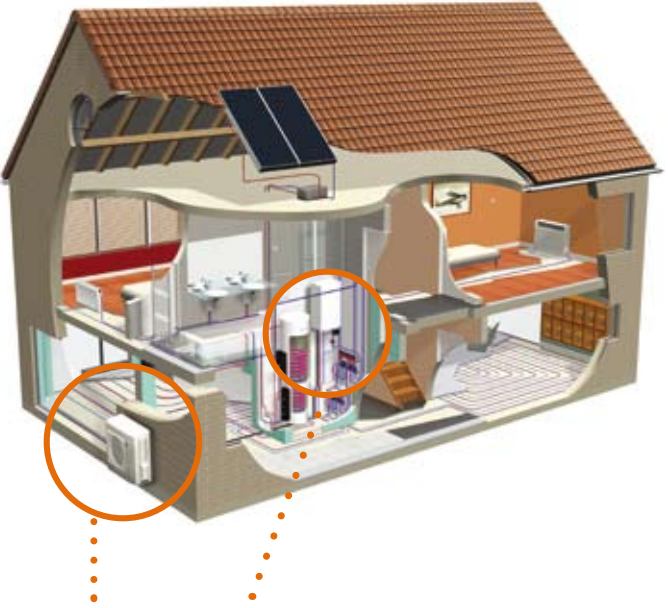
A DAIKIN ALTHERMA SYSTEM FOR EVERY APPLICATION

	LOW TEMPERATURE HEATING SYSTEM	HIGH TEMPERATURE HEATING SYSTEM
Preferred application	For new houses or together with existing boiler (bivalent)	Renovation: replacement of traditional boilers
Heating emitters	<ul style="list-style-type: none"> • Under floor heating • Low temperature radiators • Fan coil units 	<ul style="list-style-type: none"> • High temperature radiators
Extra comfort (optional)	<ul style="list-style-type: none"> • Domestic hot water • Cooling • Solar connection for hot water production 	<ul style="list-style-type: none"> • Domestic hot water • Solar connection for hot water production

PART 1. DAIKIN ALTHERMA

LOW TEMPERATURE APPLICATION

Daikin offers you the choice between a Daikin Altherma system with an outdoor unit and indoor unit, or a Daikin Altherma monobloc system, in which all hydraulic parts are located within the outdoor unit.

	DAIKIN ALTHERMA SPLIT
Application	Heating and (optional) cooling  <p>outdoor & indoor unit</p>
Heat pump type	Outdoor (compressor) + Indoor (hydraulic parts)
R-410A refrigerant piping	Between outdoor unit and indoor unit
H ₂ O piping	Between indoor unit and indoor heating appliances
Installer's advantage	No extra insulation of H ₂ O piping required to protect from freezing up

Both systems can be combined with

- under floor heating
 - fan coil units
 - low temperature radiators
- to provide your customer the comfort he or she requires.

In addition, the Daikin Altherma systems can be connected to

- a domestic hot water tank to supply your customer's hot water needs
- solar collectors, thanks to the solar kit, to support the production of hot water
- a room thermostat, to regulate the ideal temperature easily, quickly and conveniently.

DAIKIN ALTHERMA MONOBLOC

Heating and (optional) cooling



monobloc outdoor unit

Outdoor unit only (compressor and hydraulic parts combined)

Inside outdoor unit

Between outdoor unit and heating emitters

Only H₂O piping needed to install the system

LOW TEMPERATURE APPLICATION - THE BASICS

HOW DOES THE DAIKIN ALTHERMA AIR TO WATER HEAT PUMP WORK?

The system consists of 6 components which together provide the ideal comfort and water temperature.

1A/ OUTDOOR UNIT :

AN EFFICIENT USE OF ENERGY FROM THE AIR

Daikin Altherma uses a natural source of energy. The outdoor unit extracts heat from the outside air and raises its temperature to a level high enough to supply heating. This heat is then transferred to the indoor unit through refrigerant pipes (thus, the additional advantage is that the pipes can never freeze). The compact outdoor unit is easily installed and, as no drilling or excavation work is required, it can also be installed in flats and apartments.

1B/ INDOOR UNIT :

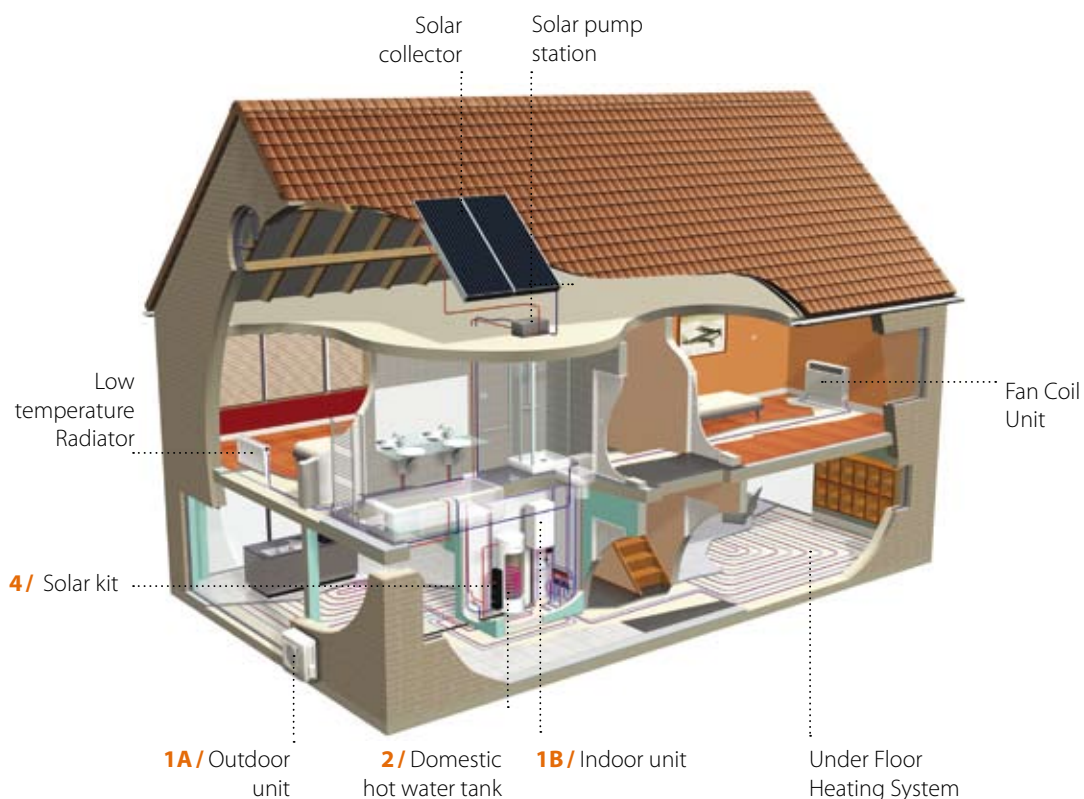
THE HEART OF THE DAIKIN ALTHERMA SYSTEM

The indoor unit heats the water that circulates through low temperature radiators, floor heating systems or fan coil units and also provides domestic hot water. If you opt for the combination of heating and cooling, then the indoor unit can also decrease the water temperature to distribute a refreshing coolness.

2/ DOMESTIC HOT WATER TANK : FOR LOW ENERGY CONSUMPTION

As for your domestic hot water, Daikin Altherma is just as clever. The unique lay-out and special placement of the system components maximise energy efficiency. The water inside the storage tank is primarily warmed up by thermal energy from the outside air, thanks to a heat exchanger connected to the heat pump. However, an additional electrical heating element in the domestic water tank

can take care of extra heat required in the shower, tub or sink. At necessary intervals the water is automatically heated to 70°C to prevent the risk of bacteria growth. With Daikin Altherma you can enjoy delightfully warm and perfectly safe water at all times. Depending on the daily consumption of hot water, Daikin Altherma domestic hot water tanks are available in different sizes.



3/ MONOBLOC OUTDOOR UNIT: ALL IN ONE

In addition to Daikin Altherma outdoor and indoor unit systems, Daikin has introduced a monobloc version in which all hydraulic parts are located within the outdoor unit.

In this new system the water pipes, rather than refrigerant lines, run indoors from the outdoor unit, making installation much quicker and easier for the domestic installer.

4/ SOLAR KIT

The solar kit provides the transfer of solar heat to the Daikin Altherma hot water tank via an external heat exchanger. In contrast to tanks with two heat exchangers, this system allows the entire content of the tank to be efficiently heated with solar heat and, if necessary, with heat pump energy.

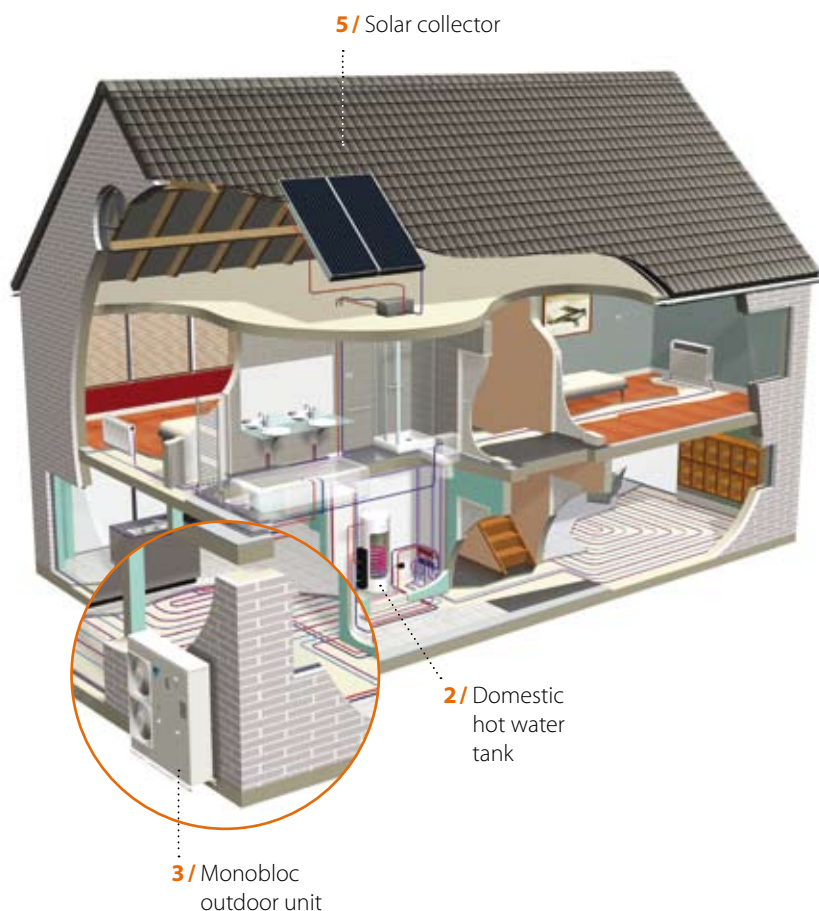
5/ SOLAR COLLECTOR

The high-efficiency collectors transfer all the short-wave solar radiation into heat as a result of their highly selective coating. The collectors can be mounted on the roof tiles.

6/ ROOM THERMOSTAT

With the wired or wireless room thermostat, the ideal temperature can be easily, quickly and conveniently regulated. An external sensor (EKRTETS) can be placed between the under floor heating and the floor, as an option to the wireless room thermostat. It allows for more precise measurement and can regulate the comfort level of your customer even more optimally and energy efficiently.

*EKRTW for wired wall-mounting and EKRTTR for the wireless type.



LOW TEMPERATURE APPLICATION - TECHNICALLY

1 - DAIKIN ALTHERMA SPLIT

1.1 - THE OUTDOOR UNIT

- > compact, weather-resistant and easy to install
- > contains a inverter controlled compressor for energy efficiency and precise temperature regulation
- > heat pump operation range: heating and domestic hot water down to -20°C outside temperature



HEAT EXCHANGER

ANTI-CORROSION TREATMENT

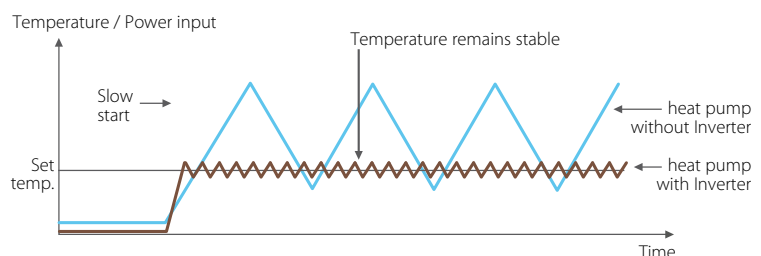
As a standard, the heat exchanger in the outdoor group is provided with an anti-corrosion treatment. This treatment guarantees a noticeable increase in resistance against acid rain and salt corrosion.



SUPER PERFORMANCE THANKS TO THE INVERTER PRINCIPLE

The coefficient of performance (COP) of the Daikin Altherma heat pump is also largely attributable to the Daikin inverter principle. An integrated frequency-converter adjusts the rotational speed of the compressor to suit the heating demand. Therefore the system seldom operates at full capacity and your customer only pays for the energy which he actually needs.

Heating operation:



Daikin Altherma small capacity models (6 to 8 kW) are equipped with a **swing-compressor**. Swing-compressors have been setting trends in the area of energy efficient performance for the past 10 years (leaks and friction are basically non-existent).

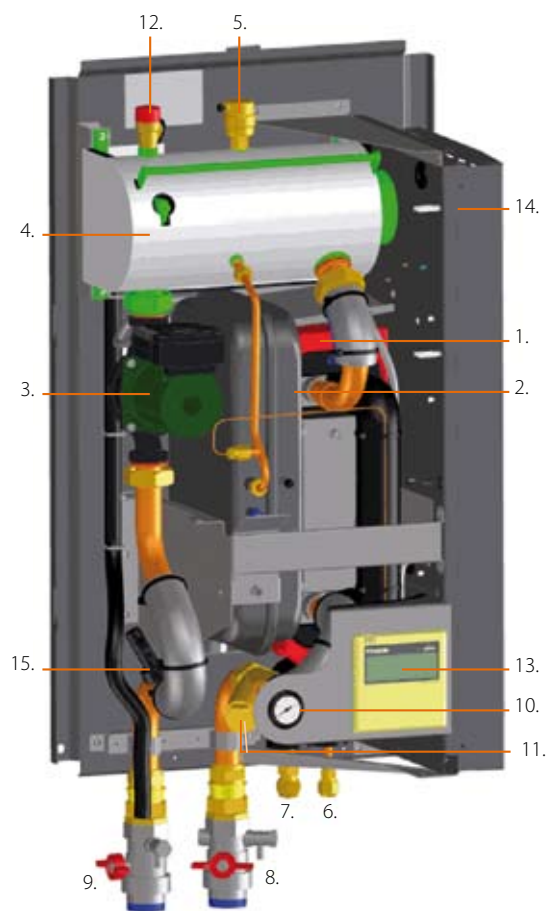


The **scroll-compressors** provided in the Daikin Altherma large capacity models (11 to 16 kW) are designed as compact, robust, low-noise device to guarantee optimal operational reliability (no valves and built-in scroll-link coupling) and efficiency (through a low initial flow and a constant compression ratio).

1.2 - THE INDOOR UNIT

- > available in two versions: EKHBH for heating only, EKHBX for heating and cooling
- > **built-in electric back-up heater** as additional heating during extremely cold outdoor temperatures or as back-up in case of problems with the outdoor unit
- > **2 shut-off valves** to assemble the water outlet and inlet
- > compact and easy to install: all components are pre-assembled, and all parts are easy to reach for maintenance. Wall-mounting is comparable to a traditional gas heater.

1. Heat exchanger
2. Expansion tank (10 litres)
3. Circulator
4. Tank with back-up heating
5. Air purge valve
6. Refrigerant fluid connection
7. Refrigerant gas connection
8. Water inlet connection
9. Water outlet connection
10. Pressure gauge (water circuit)
11. Water filter
12. Pressure relief valve
13. User interface
14. Switch box
15. Flow switch



EXTRA POSSIBILITIES THANKS TO THE INDOOR UNIT...

Heating and Cooling

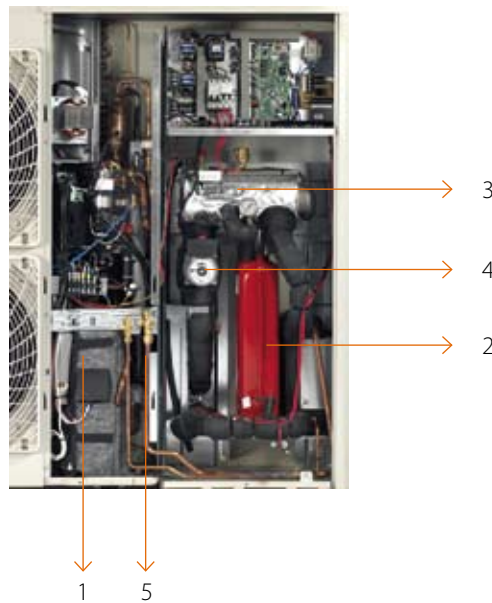
If you choose for Daikin Altherma with a reversible indoor unit (EKHBX), it can not only heat the house, but also cool it. The heat pump is then equipped with a reversible 4-way valve whereby the cooling cycle is reversed and heat is removed from the rooms. The indoor unit can cool rooms via under floor cooling or via fan coil units.

Set temperature limits

To prevent incorrect manual adjustments, temperature limits can be implemented for both cooling and heating. With under floor heating, for example, it is important that the temperature of the water is adapted to the type of floor element. To prevent condensation problems, the temperature for floor cooling can never be lower than 18°C. For fan coil units, the water temperature can be allowed to decrease to 5°C.

2 - DAIKIN ALTHERMA MONOBLOC

- > All hydraulic parts are located within the outdoor unit
- > H₂O piping between outdoor unit and indoor heating appliances



1. High efficiency compressor
2. Expansion tank
3. Tank with back up heating
4. Pressure gauge (water circuit)
5. Refrigerant connection

> Freeze protection of hydraulic parts

In order to protect the water pipes from freezing up during winter, insulation is provided for all hydraulic components and special software has been applied to activate the pump and back-up heater if necessary. This prevents the water temperature from dropping below freezing point and obviates the need for the addition of glycol to the water pipes.

> The Daikin Altherma monobloc is available in different versions

- heating only or heating and cooling
- with or without bottom plate heater
- single phase or three phase
- 11kW, 14kW or 16kW

- > **Built-in electric back-up heater** as additional heating during extremely cold outdoor temperature. The Daikin Altherma monobloc is standard equipped with a 6 kW back-up heater, which can be adjusted to 3 kW (single phase units) or 3.5 kW (three phase units) by changing the wiring.

If necessary, an "in line" back-up heater of 6 kW can be mounted indoors (also adjustable to 3 kW or 3.5 kW)

- > The **scroll-compressors** provided in the Daikin Altherma monobloc models (11 to 16 kW) are designed as compact, robust, low-noise device to guarantee optimal operational reliability (no valves and built-in swing-link coupling) and efficiency (through a low initial flow and a constant compression ratio).



3 - CONTROL SYSTEM

The low temperature heating system is controlled by 2 components.

1. - USER INTERFACE

The indoor unit and the monobloc are equipped with an easy to use digital user interface, controlling the Daikin Altherma system. The display offers a great deal of useful information:

- > Day of the week
- > Time
- > Operating mode (heating or cooling, heating domestic hot water, low-noise operating outdoor unit)
- > Inspection
- > Compressor operation
- > Pump operation
- > Back-up operation
- > Booster heating operation (in the hot water tank)
- > Error codes for alarm
- > Temperature (outdoor temperature, temperature in hot water tank, leaving water temperature at indoor unit exit)



2. - ROOM THERMOSTAT

The thermostat measures the room temperature and communicates directly to the user interface.

The LCD screen of the room thermostat indicates all the necessary information regarding the setting of the Daikin Altherma system in the blink of an eye. The user can easily navigate between the different menus whose most common functions and modes include:

- > Setting the temperature of the room based on measurements from the built-in or external sensor
- > Cooling and heating mode
- > Off function (with integrated frost-protection function)
- > Holiday function mode
- > Comfort and reduced function modes
- > Time (day and month)
- > Programmable week timer with 2 standard and 5 pre-set programmes
- > Keylock function
- > Setting limits. The installer can change the upper and lower limits



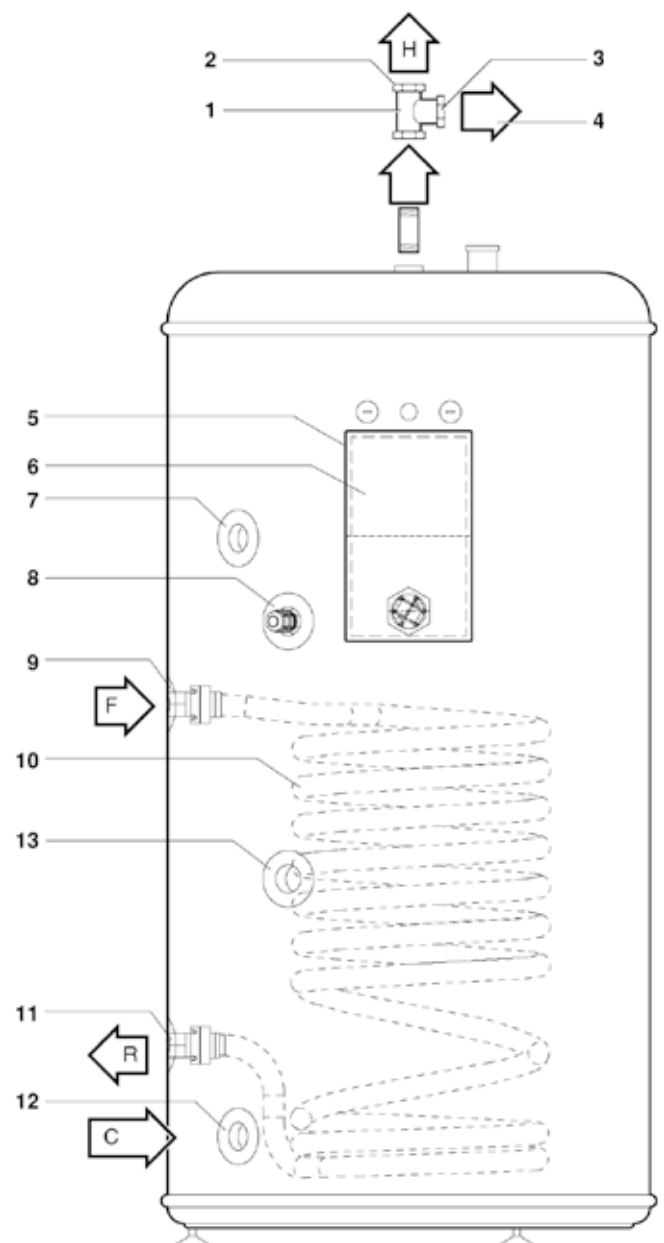
Functions	Wired room thermostat EKRTW	Wireless room thermostat EKRTR
Heating only	X	X
Heating and cooling	X	X
Comfort function mode	X	X
Reduced function mode	X	X
Scheduled function mode	X	X
Number of setpoint changes	12/day	12/day
Holiday function mode	X	X
Off function	X	X
Setpoint limitation	X	X
Keylock function	X	X
Floor temperature protection*	-	X

*only in combination with EKRTETS

4 - THE DOMESTIC HOT WATER TANK

- > available in 3 capacities: 150, 200 and 300 litres.
- > hygienic design in stainless steel or enamelled steel.
- > 40 mm cfc-free insulation material (polyurethane) for stainless steel tanks and 50 mm enamelled steel tanks.
- > contains 2 heating elements: a heat exchanger at the bottom where the hot water from the indoor unit circulates and an extra 3 kW electric heater at the top.
- > a thermistor in the hot water tank controls a 3-way valve and/or booster heater via the indoor unit.
- > 150 litre tank available in floor or wall mounted model, 200 and 300 litre only available as floor model.

1. Field supply
2. Hot water connection
3. Pressure relief valve connection
4. Pressure relief valve (field supply)
5. Electrical box
6. Electrical box lid
7. Recirculation hole
8. Thermistor socket
9. Flow inlet connection
10. Heat exchanger coil
11. Return outlet connection
12. Cold water inlet
13. Threaded thermistor hole for use with solar kit option.
Refer to the Installation manual EKSOLHWAV1.



MULTIFUNCTIONAL HOT WATER TANK ...

> Enamelled or stainless steel

To meet the needs of everyone, Daikin offers 2 types of supply tanks: either a tank made of stainless steel or a tank which has been enamelled. These are equipped with a sacrificial anode to protect the tank against corrosion.

> Anti-legionella function

To prevent the development of legionella bacteria, the hot water tank is equipped with an anti-legionella function. You can set up the programme so that the water is heated to a specific temperature (standard setting = 70°C) at a set time on one or more days of the week.

> Flexible control

It is possible to set "priority setting" for the production of domestic hot water. In this way the customer has domestic hot water available at any time of the day.

The heating of the domestic hot water can also be set up according to the night tariff. Another opportunity for rational energy consumption.

> Regulating switch-on and shut-off temperatures

You personally set the minimum and maximum temperature when the water in the tank must be heated by the heat pump for the customer.

> Delaying booster heater switch-off

To prevent the booster heater from switching on and off too often, you can allow the system to switch off as soon as the temperature reaches a maximum of 4°C higher than the set temperature.

> Allowing back-up heater and booster heater to work separately

Programming the system to prevent the simultaneous operation of the back-up heater and the booster heater is also possible. An interesting possibility for homes with a limited current load!



DID YOU KNOW...?

your customers with a solar boiler can enjoy wonderful hot water at any time, even when the sun is not shining. An integrated re-heater is included in the system to help the sun on cloudy days.

5 - SOLAR CONNECTION

THE FUTURE: SOLAR BOILER

Averaged over an entire year, the sun delivers half of the energy we need to bring our domestic water up to the desired temperature for free. Your customer can use this free solar energy by connecting a solar boiler to his Daikin Altherma system. A solar boiler is a thermal solar-energy system whereby solar rays are transformed into heat. The heat is then stored in a water supply tank.

SOLAR COLLECTOR

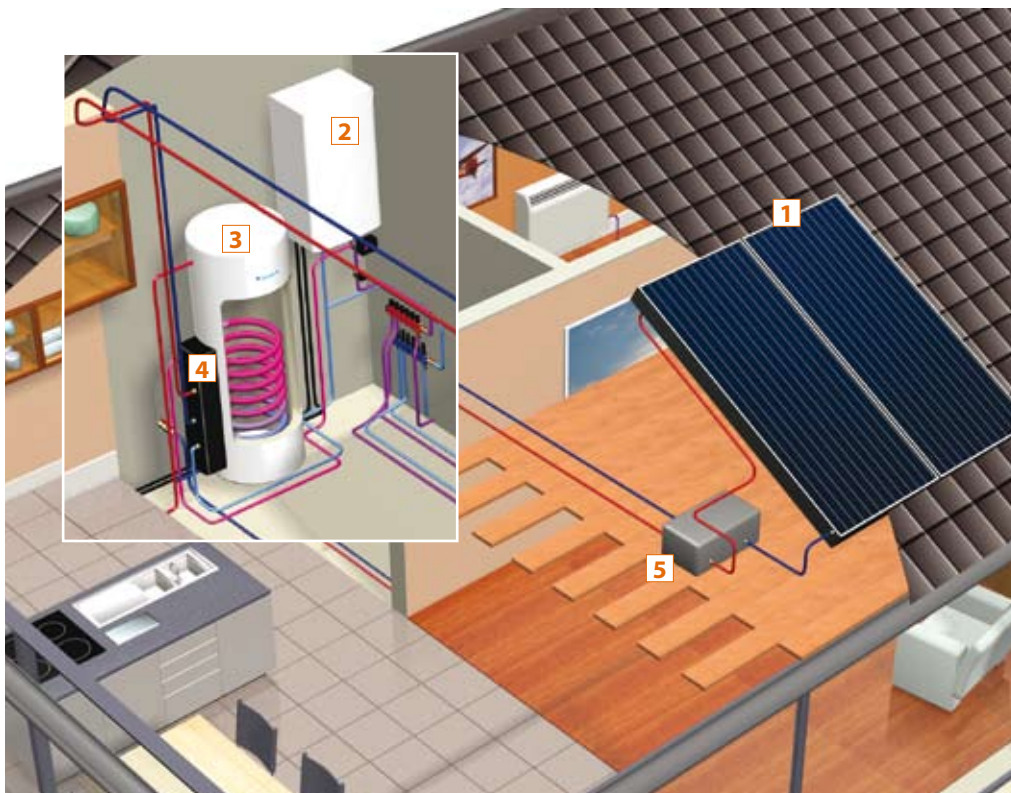
The high-efficiency collectors transfer all the short-wave solar radiation into heat as a result of their highly selective coating. The collectors can be mounted on the roof tiles.

SOLAR KIT

The solar kit provides the transfer of solar heat to the Daikin Altherma hot water tank via an external heat exchanger. In contrast to tanks with two heat exchangers, this system allows the entire content of the tank to be efficiently heated with solar heat and, if necessary, with heat pump energy.

Daikin Altherma solar boiler assembly

- > solar collector
- > plumbing network and solar pump station
- > supply tank: standard Daikin Altherma domestic hot water tank
- > solar kit
- > re-heater (Daikin Altherma heat pump unit which also provides the home with heating)



1/ Solar collector

2/ Indoor unit

3/ Domestic Hot Water Tank

4/ Solar kit

5/ Solar pump station



DID YOU KNOW ... ?

At the peak, up to 80% of the utilisable solar energy can be transformed into usable heat.

PART 2. DAIKIN ALTHERMA HIGH TEMPERATURE APPLICATION

HIGH TEMPERATURE APPLICATION - THE BASICS

1 - AIR TO WATER HEAT PUMP

A / OUTDOOR UNIT:

AN EFFICIENT USE OF ENERGY FROM THE AIR

The outdoor unit extracts heat from the ambient outdoor air. This heat is transferred to the indoor unit via refrigerant piping.

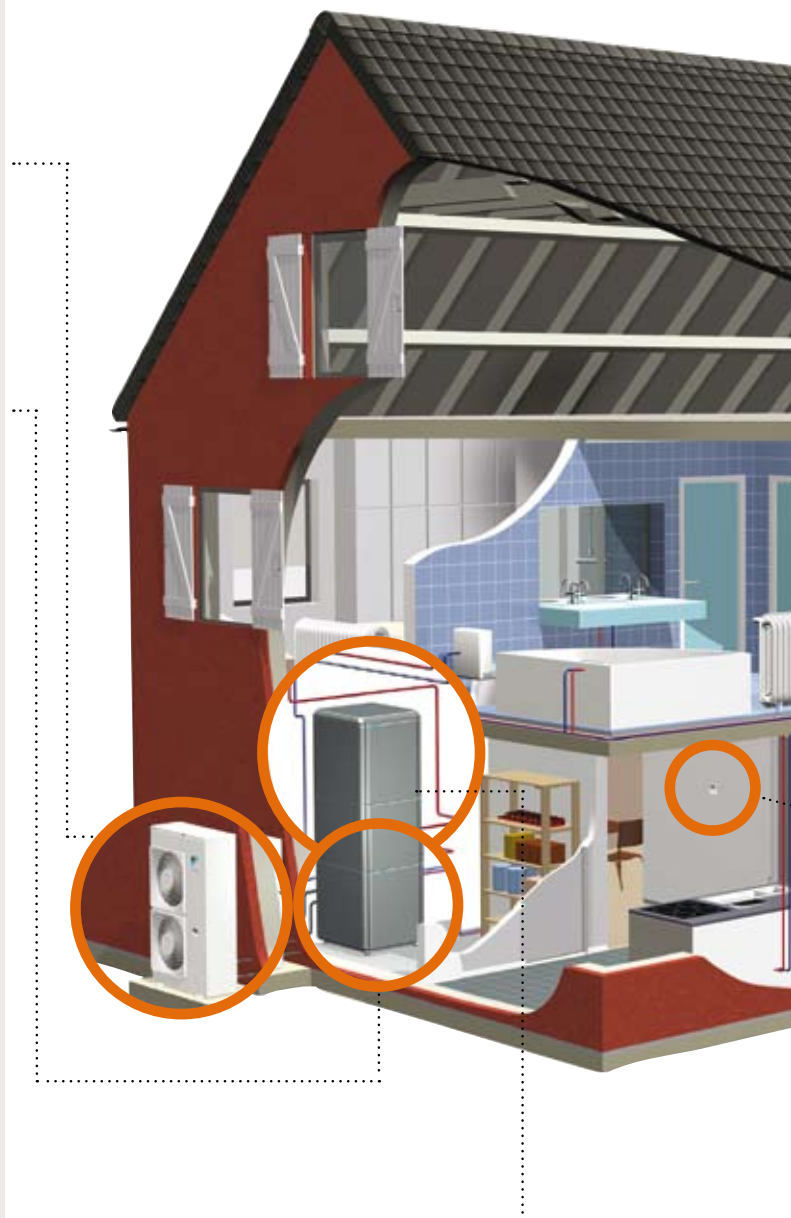
B / INDOOR UNIT:

THE HEART OF THE DAIKIN ALTHERMA SYSTEM

The indoor unit receives the heat from the outdoor unit and further increases the temperature, allowing water temperatures up to 80°C for heating through radiators and for domestic hot water use. Daikin's unique cascade compressor approach to the heat pumps (one in the outdoor unit/one in the indoor unit) means optimum comfort at even the coldest outdoor temperatures, without the need for an electric back up heater.

2 - DOMESTIC HOT WATER TANK: FOR LOW ENERGY CONSUMPTION

Daikin Altherma's high water temperature is ideal for heating domestic hot water without the need for an additional electric heater. Rapid heating of domestic hot water also means smaller boilers are needed. For a family of approximately 4 people, the standard tank is the best solution. Should you require more hot water, a larger tank is also available.





3 - USER INTERFACE

With Daikin Altherma's user interface, the ideal temperature can be easily, quickly and conveniently regulated. It allows for more precise measurement and can regulate your comfort even more optimally and energy efficiently.

HEATING AND DOMESTIC HOT WATER WITH SOLAR ENERGY

The Daikin Altherma high temperature heating system can optionally use solar energy for hot water production.

If the solar energy is not required immediately, the purpose-built hot water tank (EKHWP) can store large quantities of heated water for up to a day for later use as domestic hot water or for heating.



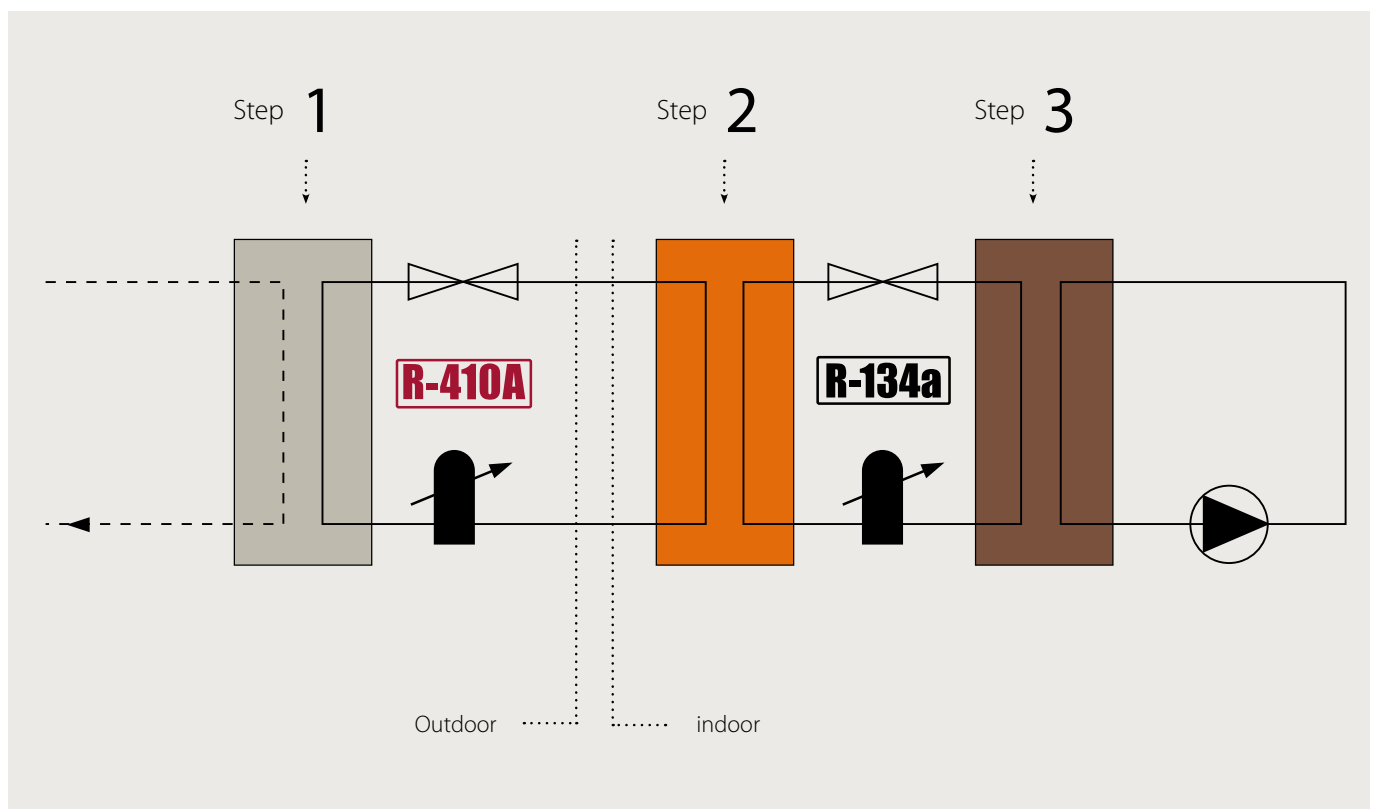
HIGH TEMPERATURE APPLICATION - TECHNICALLY

1 - THE HIGH TEMPERATURE HEAT PUMP

Daikin Altherma High Temperature uses 100% thermodynamic energy to obtain water temperatures up to 80° C without using an additional heater.

High performance in 3 steps:

1. The outdoor unit extracts heat from the ambient outdoor air. This heat is transferred to the indoor unit via R-410A refrigerant.
2. The indoor unit receives the heat and further increases the temperature with R-134a refrigerant.
3. The heat is transferred from the R-134a refrigerant circuit to the water circuit. Thanks to the unique cascade compressor approach, water temperatures of 80° C can be reached without using an additional back up heater.



2 - THE INDOOR UNIT

- › Available in heating only applications
- › No back up heater required thanks to cascade technology

1. Heat exchanger
R-134a ↔ H₂O
2. Heat exchanger
R-410A ↔ R-134a
3. Pump (DC-inverter
to maintain fixed ΔT)
4. Compressor R-134a
5. Air purge
6. Manometer
7. Expansion vessel (12l)

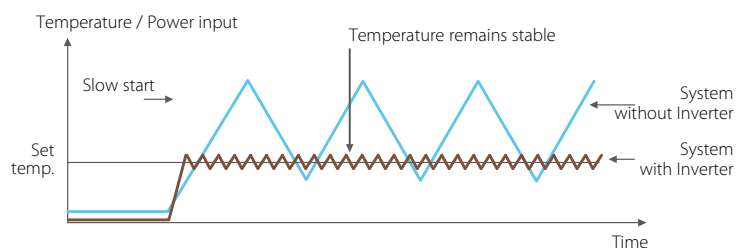


INVERTER CONTROL MEANS EVEN MORE SAVINGS!

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:





3 - CONTROL SYSTEM



The user interface controls the high temperature heating system in 2 ways:

1/ WEATHER DEPENDANT FLOATING SET POINT

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.

2/ THERMOSTAT CONTROL

With Daikin Altherma's user interface with integrated temperature sensor, the ideal temperature can be easily, quickly and conveniently regulated.

The easy-to-control user interface for high temperature applications guarantees your comfort:

- › Space heating
- › Quiet mode
- › Setback function
- › Disinfection function
- › Off function
- › Time scheduler
- › Domestic water heating mode

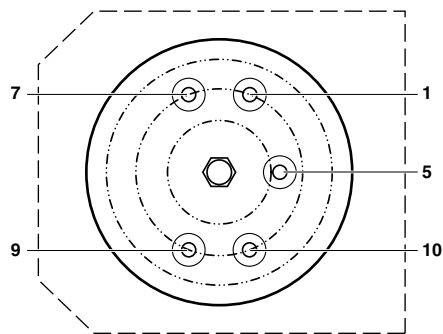
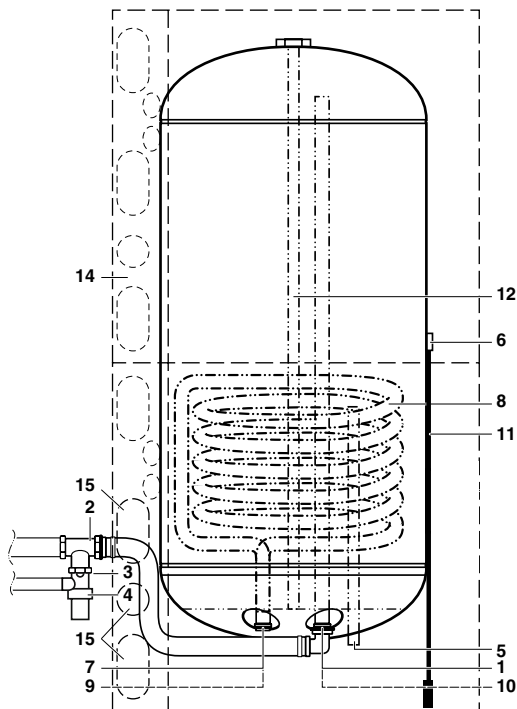
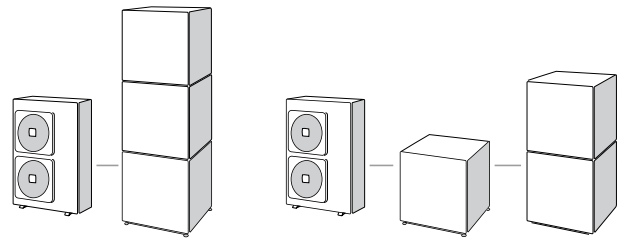
4 - DOMESTIC HOT WATER TANK

Functions	Domestic hot water tank EKHTS-A	Domestic hot water tank EKHWP-A
Preferred application	Domestic hot water only	Domestic hot water – possibility for solar connection
Operation	The water stored in the tank is used for domestic hot water	Domestic hot water is not stored in the tank but flows through the tank's coil

1/ EKHTS-A – DOMESTIC HOT WATER ONLY

Daikin Altherma High Temperature can provide efficient domestic hot water. The complete system integrates seamlessly with your existing radiators and hot water facilities.

The indoor unit and domestic hot water tank can be stacked to save space, or installed next to each other, if only limited height is available for installation.



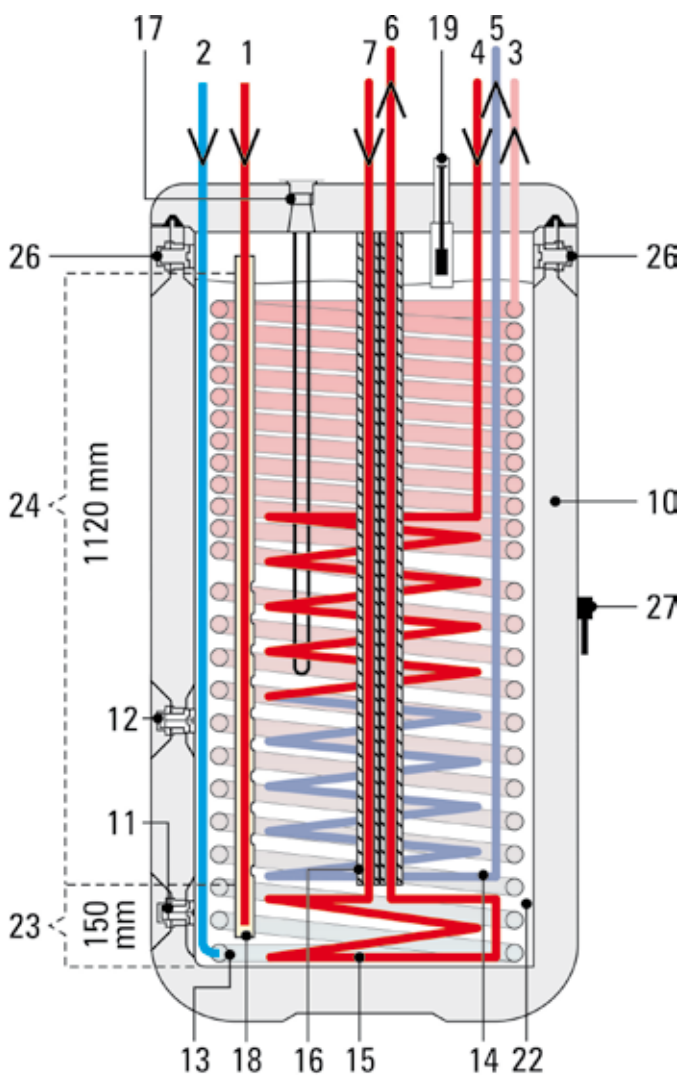
- | | |
|---|-----------------------------|
| 1. Hot water connection | 8. Heat exchanger coil |
| 2. T-piece (field supply) | 9. Return outlet connection |
| 3. Pressure relief valve connection | 10. Cold water connection |
| 4. Pressure relief valve (field supply) | 11. Thermistor |
| 5. Recirculation hole | 12. Anode |
| 6. Thermistor socket | 13. Casing |
| 7. Flow inlet connection | 14. Knockout holes |

2/ EKHWP-A: DOMESTIC HOT WATER – POSSIBILITY FOR SOLAR CONNECTION

The domestic hot water tank has two sections:

The upper, always hot, section – **the active water zone** – and the lower, colder section – **the solar zone**.

1. **The active water** is heated in the upper section of the storage tank. The high temperature of this zone ensures that sufficient hot water is always available.
2. Solar collectors work more efficiently when colder water flows through the solar collectors. Therefore, the water that is fed directly to the solar collectors in solar operation is stored in the **solar zone**.



1. Inlet from solar collector (1" F junction joint)
2. Cold water inlet (1" M)
3. Hot water outlet (1" M)
4. Inlet from heat pump (1" M)
5. Return to heat pump (1" M)
6. Heating support outlet (1" M)
7. Heating support inlet (1" M)
8. Solar support outlet (1" M)
9. Solar support inlet (1" M)
10. Domestic hot water tank
11. Fill and drain valve
12. Connection for equalisation pipe (not used)
13. Heat exchanger domestic hot water
14. Heating heat exchanger
15. Heat exchanger for solar heating support
16. Heat insulation shell for solar heating support.
17. Insertion hole for electric heater option (not used)
18. Solar collector inlet stratification pipe
19. Filling level indicator
21. Dip sleeve for temperature sensors
22. Pressure-free storage tank water
23. Solar zone
24. Service water zone
25. Name plate
26. Safety overflow fitting
27. Handle

5 - SOLAR CONNECTION

SOLAR COLLECTORS

High-efficiency collectors with highly selective coating transfer all the short-wave solar radiation into heat. The collectors can be mounted on roof tiles.

OPERATION

The solar collectors are only filled with water when sufficient heat is provided by the sun.

In this case, both pumps in the control and pump unit switch on briefly and fill the collectors with storage tank water. After filling, which takes less than a minute, one of the pumps switches off and water circulation is maintained by the remaining pump.

UNPRESSURISED SYSTEM

If there is insufficient sunshine or if the solar storage tank does not need more heat, the feed pump switches off and the entire Solar System drains into the storage tank. The addition of antifreeze is not necessary since, if the installation is not in use, the collector surfaces are not filled with water – another environmental advantage!



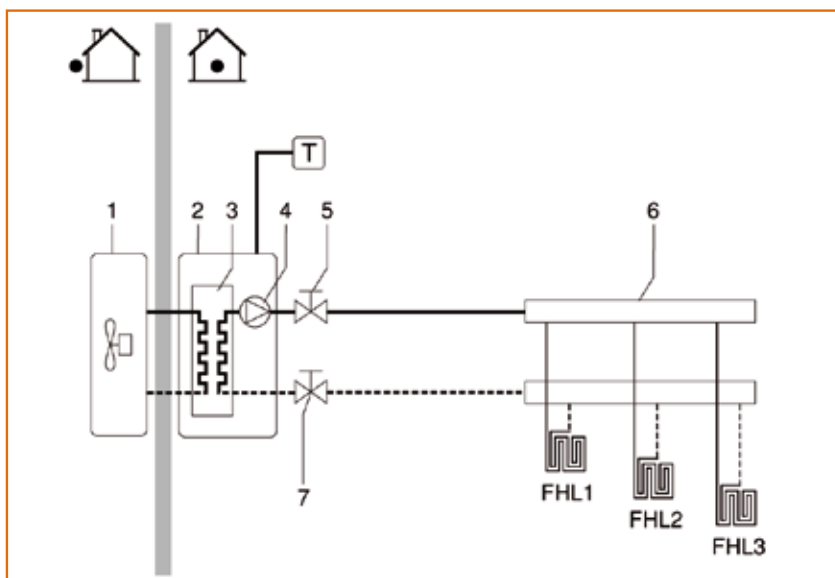
PART 3. DAIKIN ALTHERMA

TECHNICAL SPECIFICATIONS

LOW TEMPERATURE APPLICATION

1A/ CONFIGURATION POSSIBILITIES - SPLIT

1. Application “heating only” with a room thermostat connected to the indoor unit

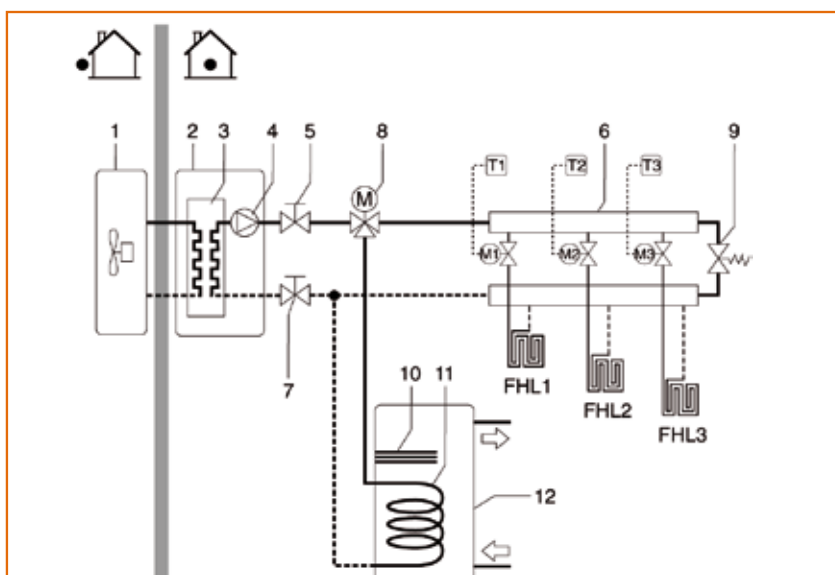


- 1. Outdoor unit
- 2. Indoor unit
- 3. Heat exchanger
- 4. Pump
- 5. Valve
- 6. Manifold (SBI)
- 7. Valve

FHL1...3 (Under) floor heating loop (SBI)
T Room thermostat

2. Application “heating” and “production of domestic hot water”

The temperature in each room is regulated by a valve on every water circuit. Hot water for domestic use is delivered by the domestic hot water tank connected to the indoor unit.



- 1. Outdoor unit
- 2. Indoor unit
- 3. Heat exchanger
- 4. Pump
- 5. Valve
- 6. Manifold (SBI)
- 7. Valve
- 8. Motorised 3-way valve
- 9. Pressure relief valve
- 10. Booster heater
- 11. Heat exchanger spiral
- 12. Tank for domestic hot water

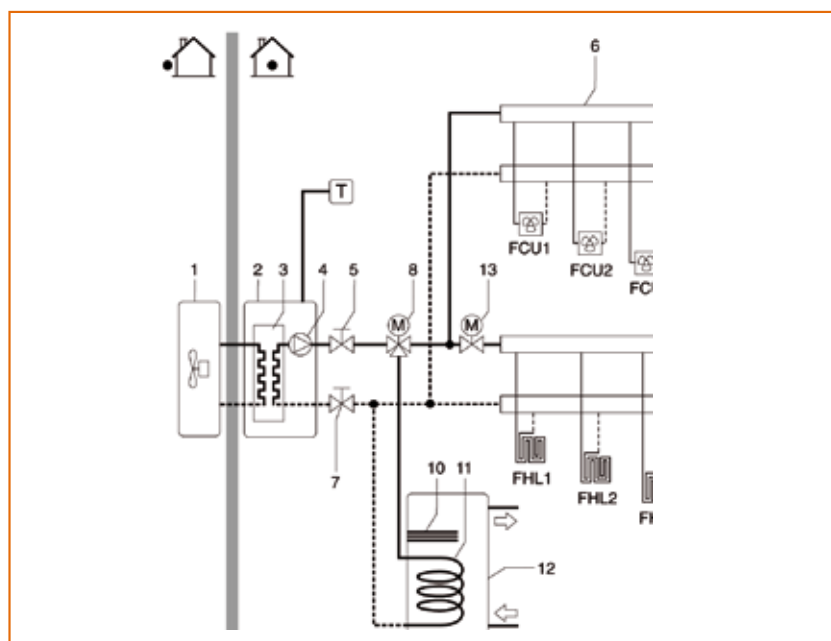
FHL1...3 (Under) floor heating loop (SBI)
T 1...3 Individual room thermostat

SBI: Supplied by installer

3. Application “heating/cooling” via room thermostat and “production of domestic hot water”

Heating using under floor heating loops and fan coil units. Cooling using only the fan coil units.

Hot water for domestic use is delivered by the domestic hot water tank connected to the indoor unit.



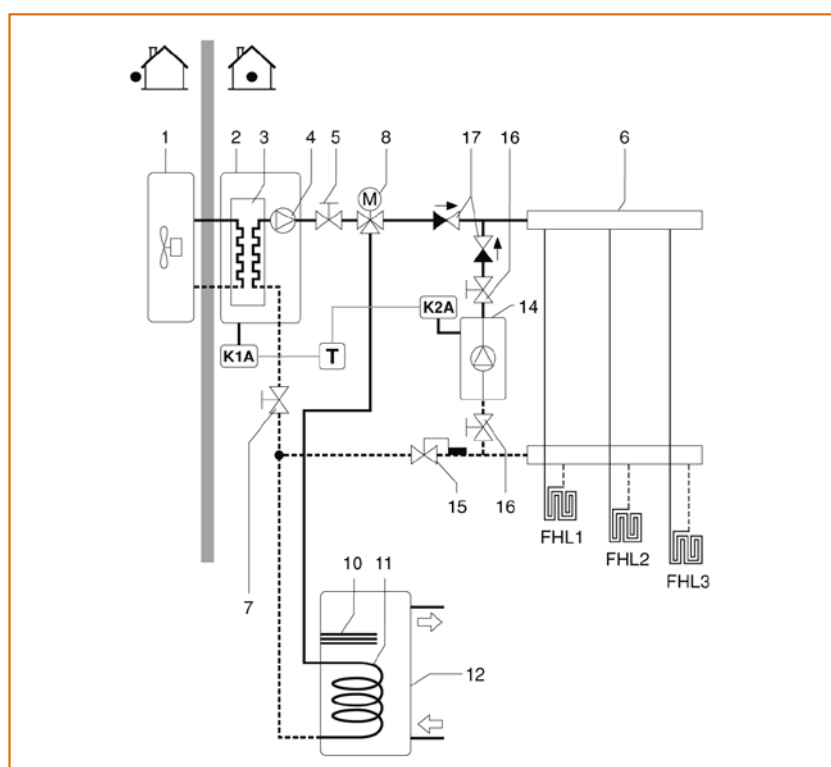
1. Outdoor unit
2. Indoor unit
3. Heat exchanger
4. Pump
5. Valve
6. Manifold (SBI)
7. Valve
8. Motorised 3-way valve
10. Booster heater
11. Heat exchanger spiral
12. Tank for domestic hot water
13. Motorised 2-way valve (SBI)

FCU1...3 Fan coil unit (SBI)

FHL1...3 (Under) floor heating loop (SBI)

T Room thermostat with cooling / heating switch

4. Bivalent application



1. Outdoor unit
2. Indoor unit
3. Heat exchanger
4. Pump
5. Valve
6. Manifold (SBI)
7. Valve
8. Motorised 3-way valve
10. Booster heater
11. Heat exchanger spiral
12. Tank for domestic hot water
14. External heating device (SBI)
15. Aquastat (SBI)
16. Valve (SBI)
17. One-way valve (SBI)

FHL1...3 (Under) floor heating loop (SBI)

K1A Relay for activating EKHB*unit (SBI)

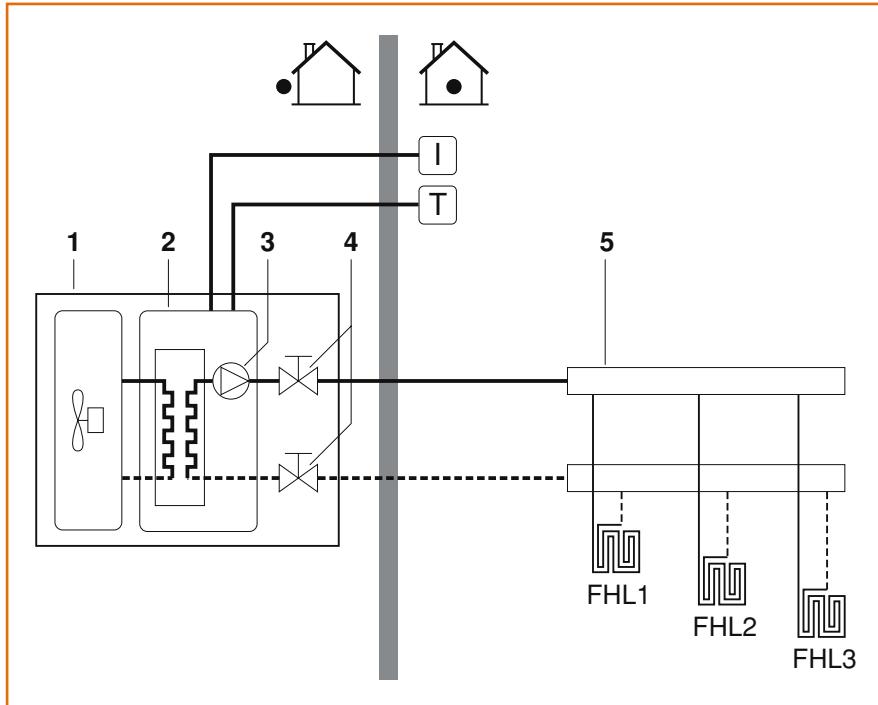
K2A Relay for activating hot water tank (SBI)

T Room thermostat

SBI: Supplied by installer

1B/ CONFIGURATION POSSIBILITIES - MONOBLOC

1. Application “heating only” with a room thermostat connected to the indoor unit

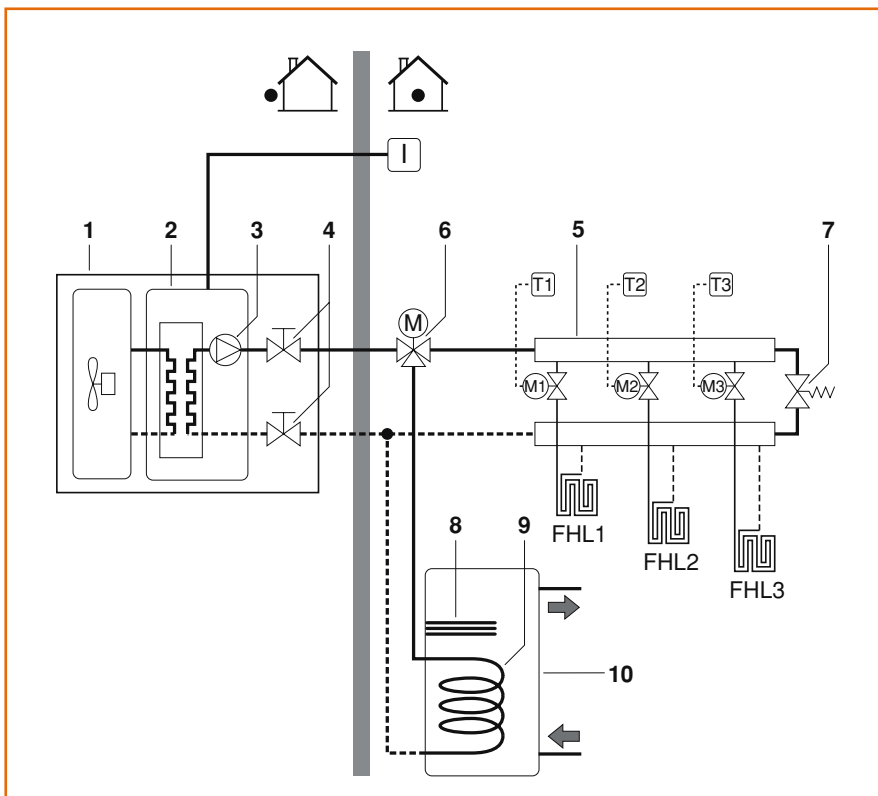


1. Unit
2. Heat exchanger
3. Pump
4. Shut-off valve
5. Collector (field supply)

FHL1...3 Floor heating loop (field supply)
T Room thermostat (field supply)
I User interface

2. Application “heating” and “production of domestic hot water”

The temperature in each room is regulated by a valve on every water circuit. Hot water for domestic use is delivered by the domestic hot water tank connected to the unit.



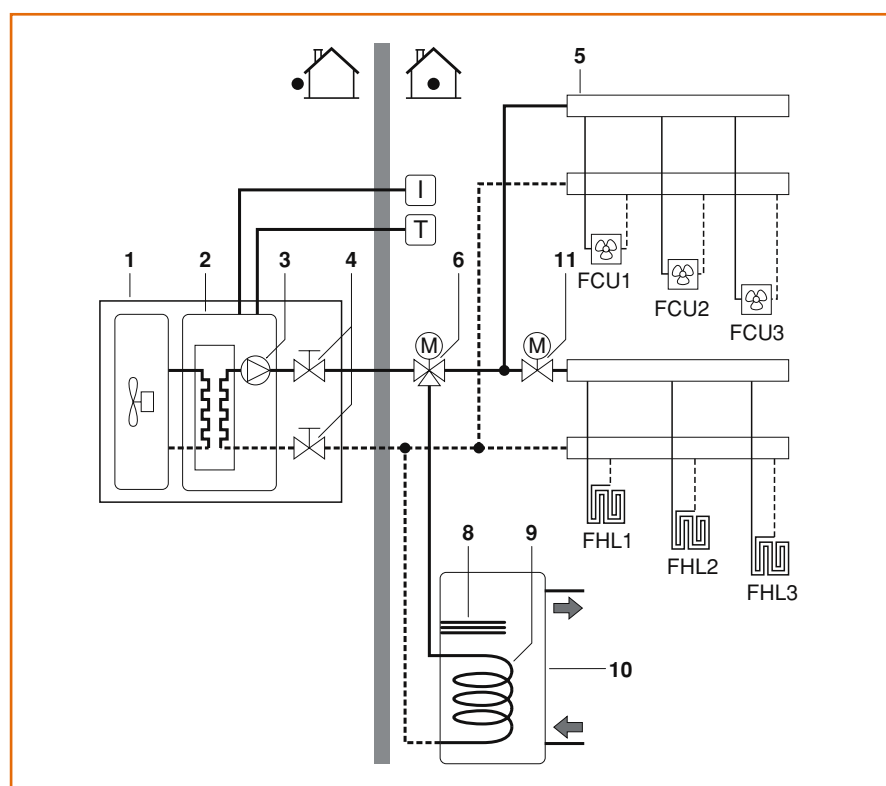
1. Unit
2. Heat exchanger
3. Pump
4. Shut-off valve
5. Collector (field supply)
6. Motorised 3-way valve
7. By-pass valve (field supply)
8. Booster heater
9. Heat exchanger coil
10. Domestic hot water tank

FHL1...3 Floor heating loop (field supply)
T 1...3 Individual room thermostat (field supply)
M 1...3 Individual motorised valve to control loop FHL1 (field supply)
I User interface

3. Application “heating/cooling” via room thermostat and “production of domestic hot water”

Heating using under floor heating loops and fan coil units. Cooling using only the fan coil units.

Hot water for domestic use is delivered by the domestic hot water tank connected to the unit.

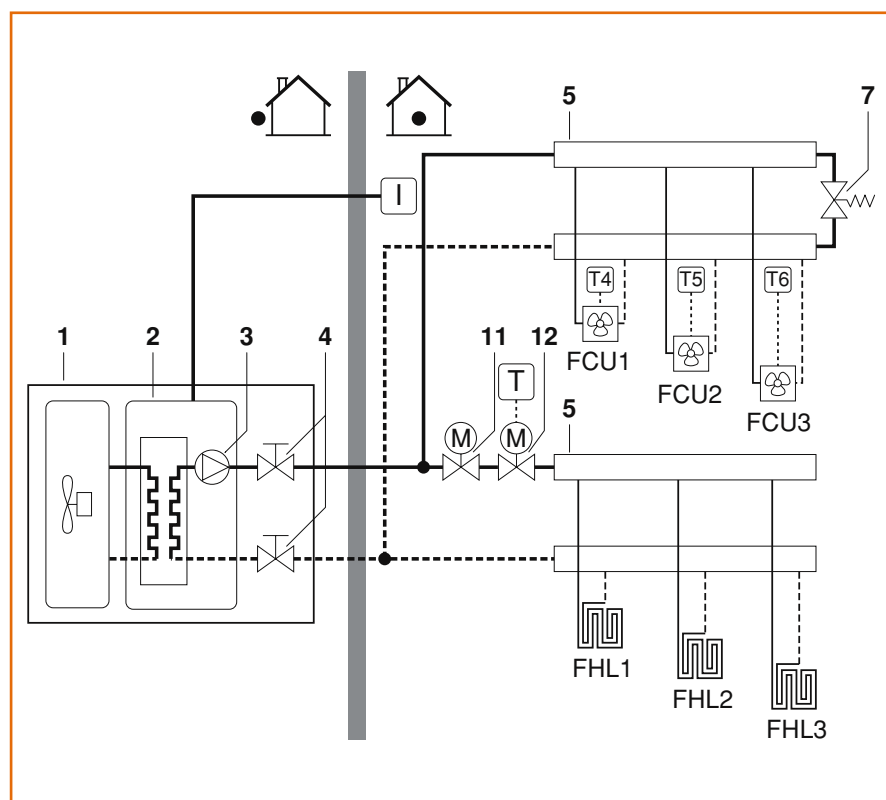


1. Unit
2. Heat exchanger
3. Pump
4. Shut-off valve
5. Collector (field supply)
6. Motorised 3-way valve
8. Booster heater
9. Heat exchanger coil
10. Domestic hot water tank
11. Motorised 2-way valve (field supply)

FCU1...3 Fan coil unit (field supply)
 FHL1...3 Floor heating loop (field supply)
 T Room thermostat with cooling/heating switch (field supply)
 I User interface

4. Application “heating/cooling” without a room thermostat

but with a heating only room thermostat controlling the underfloor heating and a cooling/heating thermostat controlling the fan coil units.



1. Unit
2. Heat exchanger
3. Pump
4. Shut-off valve
5. Collector (field supply)
6. By-pass valve (field supply)
11. Motorised 2-way valve to shut off the floor heating loops during cooling operation (field supply)
12. Motorised 2-way valve for activation of the room thermostat (field supply)

FCU1...3 Fan coil unit with thermostat (field supply)
 FHL1...3 Floor heating loop (field supply)
 T Heating only room thermostat (field supply)
 T4..6 Individual room thermostat for fan coil heated/cooled room (field supply)
 I User interface

2A/ TECHNICAL DATA - SPLIT



See page 7



INDOOR UNIT

			EKHBH008B***	EKHBX008B***	EKHBH016B***	EKHBX016B***
Function			Heating only	Reversible	Heating only	Reversible
Dimensions	HxWxD	mm	922x502x361	922x502x361	922x502x361	922x502x361
Colour			Neutral white (RAL 9010)			
Material			Epoxy polyester painted galvanised steel			
Weight			46		48	
Leaving water	heating	°C	15~50		15~55	
temperature range	cooling	°C	-	5~22	-	5~22
Drain valve			yes			
FACTORY MOUNTED HEATER			kW	capacity steps	power supply	
EKHBH(X)008B3V3 / EKHBH(X)016B3V3			3	1	1~/230V	
EKHBH(X)008B6V3 / EKHBH(X)016B6V3			6	2	1~/230V	
EKHBH(X)008B6WN / EKHBH(X)016B6WN			6	2	3~/400V	
EKHBH(X)008B6T1 / EKHBH(X)016B6T1			6	2	3~/230V	
EKHBH(X)008B9WN / EKHBH(X)016B9WN			9	2	3~/400V	
EKHBH(X)008B9T1 / EKHBH(X)016B9T1			9	2	3~/230V	



OUTDOOR UNIT

			ER(H/L)Q006BV3	ER(H/L)Q007BV3	ER(H/L)Q008BV3
Dimensions	HxWxD	mm	735x825x300		
Nominal capacity	heating	kW	5.75	6.84	8.43
	cooling	kW	7.20	8.16	8.37
Nominal input	heating	kW	1.26	1.58	2.08
	cooling	kW	2.27	2.78	2.97
COP			4.56	4.34	4.05
EER			3.17	2.94	2.82
Operation range	heating	°C	-20~25		
	cooling	°C	10~43		
	domestic water	°C	-20~43		
Sound power level	heating	dB(A)	61	61	62
	cooling	dB(A)	63	63	63
Sound pressure level	heating	dB(A)	48	48	49
	cooling	dB(A)	48	48	50
Weight			56		
Refrigerant charge	R-410A	kg	1.7		
Power supply			1~/230V/50Hz		
Recommended fuses			A 20		

Measuring conditions: Heating Ta DB/WB 7°C/6°C - LWC 35°C (DT=5°C) - Cooling Ta 35°C - LWE18°C (DT=5°C)



(Single phase)



(Three phase)

			ER(H/L)Q011BV3	ER(H/L)Q014BV3	ER(H/L)Q016BV3	ER(H/L)Q011BW1	ER(H/L)Q014BW1	ER(H/L)Q016BW1
Dimensions	HxWxD	mm	1,170x900x320			1,345x900x320		
Nominal capacity	heating	kW	11.2	14.0	16.0	11.32	14.50	16.05
	cooling	kW	13.9	17.3	17.8	15.05	16.06	16.76
Nominal input	heating	kW	2.46	3.17	3.83	2.54	3.33	3.73
	cooling	kW	3.79	5.78	6.77	4.44	5.33	6.06
COP			4.55	4.42	4.18	4.46	4.35	4.30
EER			3.67	2.99	2.63	3.39	3.01	2.76
Operation range	heating	°C	-20~35			-20~35		
	cooling	°C	10~46			10~46		
	domestic hot water	°C	-20~43			-20~43		
Sound power level	heating	dB(A)	64	64	66	64	64	66
	cooling	dB(A)	64	66	69	64	66	69
Sound pressure level	heating	dB(A)	49	51	53	51	51	52
	cooling	dB(A)	50	52	54	50	52	54
Sound pressure level - night quiet	heating	dB(A)	42	42	43	42	42	43
	cooling	dB(A)	45	45	46	45	45	46
Weight			103			108 / 110*		
Refrigerant charge	R-410A	kg	3.7			2.95		
Power supply			1~/230V/50Hz			3N~/400V/50Hz		
Recommended fuses			A 32			20		

Measuring conditions: Heating Ta DB/WB 7°C/6°C - LWC 35°C (DT=5°C) - Cooling Ta 35°C - LWE18°C (DT=5°C)

* 108 kg for ERHQ11-016BW1 / 110 kg for ERLQ11-016BW1

2B/ TECHNICAL DATA - MONOBLOC



OUTDOOR UNIT

			HEATING ONLY			REVERSIBLE		
SINGLE PHASE	with bottom plate heater		EDLQ011B6V3	EDLQ014B6V3	EDLQ016B6V3	EBLQ011B6V3	EBLQ014B6V3	EBLQ016B6V3
	without bottom plate heater		EDHQ011B6V3	EDHQ014B6V3	EDHQ016B6V3	EBHQ011B6V3	EBHQ014B6V3	EBHQ016B6V3
Nominal capacity	heating	kW	11.20	14.00	16.00	11.20	14.00	16.00
	cooling	kW				12.85	15.99	16.73
	heating	kW	2.47	3.20	3.79	2.47	3.20	3.79
	cooling	kW				3.78	5.65	6.28
COP			4.54	4.37	4.22	4.54	4.37	4.22
EER						3.39	2.83	2.66
Operation range	heating	°C	-15~35 (1)			-15~35 (1)		
	cooling	°C				10~46		
	domestic water	°C	-15~43			-15~43		
Sound power level	heating	dBa	64	64	66	64	64	66
	cooling	dBa				65	66	69
Sound pressure level	heating	dBa	51	51	52	51	51	52
	cooling	dBa				50	52	54
Weight		kg	180			180		
Refrigerant charge		kg	2.95			2.95		
Power supply			1~/230V/50Hz			1~/230V/50Hz		
Recommended fuses		A	32			32		

Measuring conditions: Heating Ta DB/WB 7°C/6°C - LWC 35°C (DT=5°C) - Cooling Ta 35°C - LWE18°C (DT=5°C)

(1) E(D/B)L* models can reach -20°C / E(D/B)L*6W1 models can reach -25°C but without capacity guarantee



			HEATING ONLY			REVERSIBLE		
THREE PHASE	with bottom plate heater		EDLQ011B6W1	EDLQ014B6W1	EDLQ016B6W1	EBLQ011B6W1	EBLQ014B6W1	EBLQ016B6W1
	without bottom plate heater		EDHQ011B6W1	EDHQ014B6W1	EDHQ016B6W1	EBHQ011B6W1	EBHQ014B6W1	EBHQ016B6W1
Nominal capacity	heating	kW	11.20	14.00	16.00	11.20	14.00	16.00
	cooling	kW				12.85	15.99	16.73
Nominal input	heating	kW	2.51	3.22	3.72	2.51	3.22	3.72
	cooling	kW				3.78	5.32	6.06
COP			4.46	4.35	4.30	4.46	4.35	4.30
EER						3.39	3.01	2.76
Operation range	heating	°C	-15~35 (1)			-15~35 (1)		
	cooling	°C				10~46		
	domestic water	°C	-15~43 (1)			-15~43 (1)		
Sound power level	heating	dBa	-	-	-	64	64	66
	cooling	dBa				65	66	69
Sound pressure level	heating	dBa	49	51	53	49	51	53
	cooling	dBa				50	52	54
Weight		kg	180			180		
Refrigerant charge		kg	2.95			2.95		
Power supply			3N~/400V/50Hz			3N~/400V/50Hz		
Recommended fuses		A	20			20		

Measuring conditions: Heating Ta DB/WB 7°C/6°C - LWC 35°C (DT=5°C) - Cooling Ta 35°C - LWE18°C (DT=5°C)

(1) E(D/B)L* models can reach -20°C / E(D/B)L*6W1 models can reach -25°C but without capacity guarantee

2A/ TECHNICAL DATA - OPTIONS



DOMESTIC HOT WATER TANK

		EKHWS150B3V3		EKHWS200B3V3		EKHWS300B3V3		EKHWS200B3Z2		EKHWS300B3Z2		
Water volume	l	150		200		300		200		300		
Max.water temperature	°C	85										
Height	mm	900		1,150		1,600		1,150		1,600		
Diameter	mm	580										
Booster heater	kW	3										
Power supply		1~/230V/50Hz						2~/400V/50Hz				
Material inside tank		Stainless steel (DIN 1.4521)										
Material outside casing		Epoxy-coated mild steel										
Colour		Neutral white										
Empty weight	kg	37		45		59		45		59		
		EKHWE150A3V3		EKHWE200A3V3		EKHWE300A3V3		EKHWE200A3Z2		EKHWE300A3Z2		
		EKHWE150A3V3		EKHWE200A3V3		EKHWE300A3V3		EKHWE200A3Z2		EKHWE300A3Z2		
EKHWE150A3V3		EKHWE200A3V3		EKHWE300A3V3		EKHWE200A3Z2		EKHWE300A3Z2		EKHWE150A3V3		
Mounting		Floor										Wall
Water volume	l	150		200		300		200		300		
Max.water temperature	°C	75										
Height	mm	1,205		1,580		1,572		1,580		1,572		
Diameter	mm	545		545		660		545		660		
Booster heater	kW	3										
Power supply		1~/230V/50Hz						2~/400V/50Hz			1~/230V/50Hz	
Material inside tank		Enamel coated steel acc. (DIN4753TL2)										
Material outside casing		Epoxy coated steel										
Colour		Natural white (RAL 9010)										
Empty weight	kg	80		104		140		104		82		



SOLAR KIT

			EKSOLHWAV1
Dimensions	HxWxD	mm	770x305x270
	pressure drop	kPa	21.5
Heat exchanger	max.inlet temp	°C	110
	heat exchange capacity	W/K	1,400
Ambient temperature	max.	°C	35
	min.	°C	1
Power supply			1~/220-240V/50Hz
Power supply intake			indoor unit
Weight		kg	8
Sound pressure level		dB(A)	27



(wired)


thermostat - receiver
(wireless)

ROOM THERMOSTAT

			EKRTW	EKRTR		EKRTETS (option)
				Thermostat	Receiver	
Dimensions	HxWxD	mm	87x125x34	87x125x34	170x50x28	3m wire length
Weight	Net weight	g	215	210	125	65
Ambient temperature	Storage	°C	-20~60	-20~60	-20~60	-20~60
	Operation	°C	0~50	0~50	0~50	0~50
Temperature setpoint range	Heating	°C	4~37	4~37	-	-
	Cooling	°C	4~37	4~37	-	-
Clock			yes	yes	-	-
Regulation function			proportional band	proportional band	-	-

PUMP STATION

			EKSRS1A with controller EKS3PA
Mounting method			On wall
Dimensions	HxWxD	mm	332x230x145
Power supply			230V / 50 Hz
Control			Digital temperature difference controller with plain text
Max. electric power consumption of the control unit	W		2
Solar panel temperature sensor			Pt1000
Storage tank sensor			PTC
Return flow sensor			PTC
Feed temperature and flow sensor (option)			Voltage signal (3,5V DC)





SOLAR COLLECTOR

			EKSV26P	EKSH26P
Position			Vertical	Horizontal
Dimensions	HxWxD	mm	2,000x1,300x85	1,300x2,000x85
Outer surface		m ²	2.60	
Absorber surface		m ²	2.36	
Weight		kg	42	
Water content		l	1.7	2.1
Absorber			harp-shaped copper pipe register with laser-welded highly selective coated aluminum plate	
Coating			micro-therm (absorption max. 96%, emission ca. 5% +/- 2%)	
Glazing			Single pane safety glass, transmission +/- 92%	
Heat insulation			mineral wool, 50mm	
Max. pressure drop at 100l/min		mbar	3	0.5
Allowed roof angle			15° to 80°	
Max. standstill temperature			200	
Max. operating pressure			6	

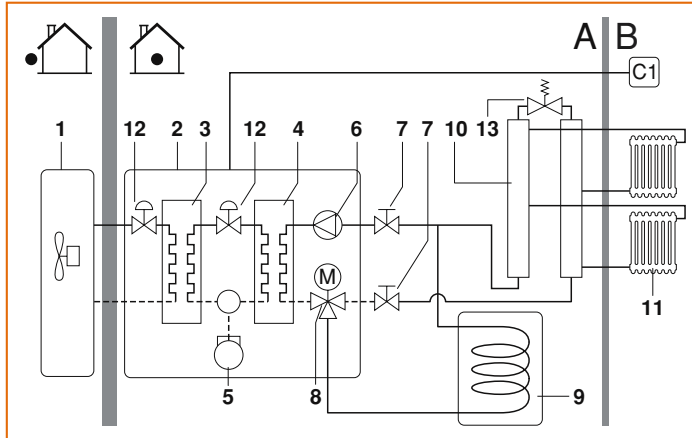
The collectors are standstill resistant over a long period and are tested for thermal shock. Minimum collector yield over 525kWh/m² at 40% covering proportion, location Würzburg, Germany.



HIGH TEMPERATURE APPLICATION

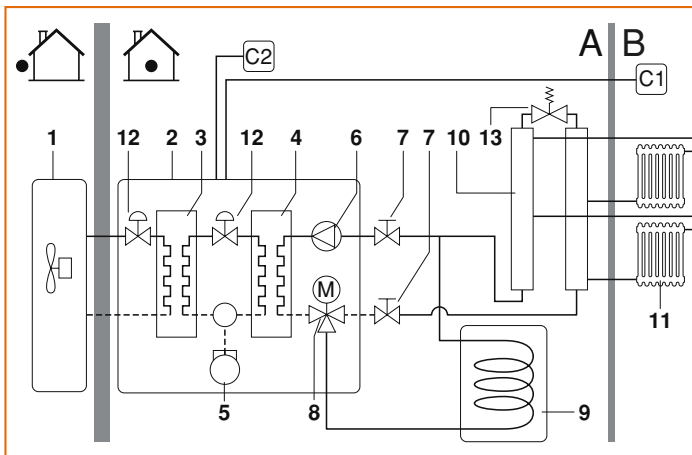
1/ CONFIGURATION POSSIBILITIES

1. Space heating and domestic hot water heating with a single remote controller installed in the living room



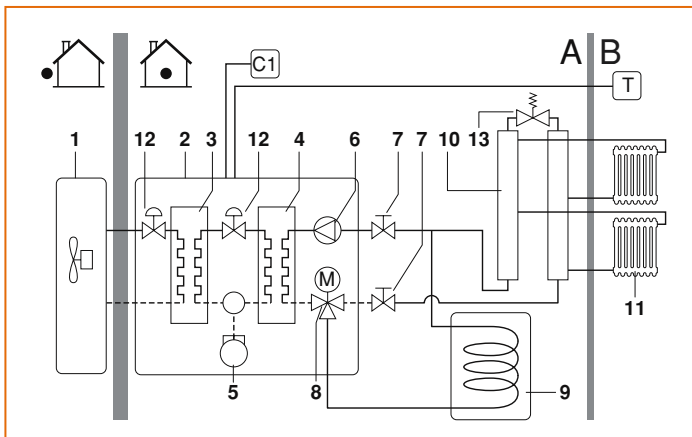
- | | |
|---------------------------------------|----------------------------------|
| 1. Outdoor unit | 10. Collector (field supply) |
| 2. Indoor unit | 11. Radiator (field supply) |
| 3. Refrigerant heat exchanger | 12. Electronic expansion valve |
| 4. Water heat exchanger | 13. By-pass valve (field supply) |
| 5. Compressor | |
| 6. Pump | C1 Remote controller |
| 7. Shut-off valve | A Installation place |
| 8. Motorized 3-way valve (optional) | B Living room |
| 9. Domestic hot water tank (optional) | |

2. Space heating and domestic hot water heating with one remote controller installed with the unit, and another remote controller installed in the living room



- | | |
|---------------------------------------|---------------------------------------|
| 1. Outdoor unit | 11. Radiator (field supply) exchanger |
| 2. Indoor unit | 12. Electronic expansion valve |
| 3. Refrigerant heat exchanger | 13. By-pass valve (field supply) |
| 4. Water heat exchanger supply) | |
| 5. Compressor | C1 Remote controller (master) |
| 6. Pump | C2 Optional remote controller |
| 7. Shut-off valve (slave) | A Installation place |
| 8. Motorized 3-way valve (optional) | B Living room |
| 9. Domestic hot water tank (optional) | |
| 10. Collector (field supply) | |

3. Space heating and domestic hot water heating with a single remote controller installed with the unit, and the external room thermostat installed in the living room



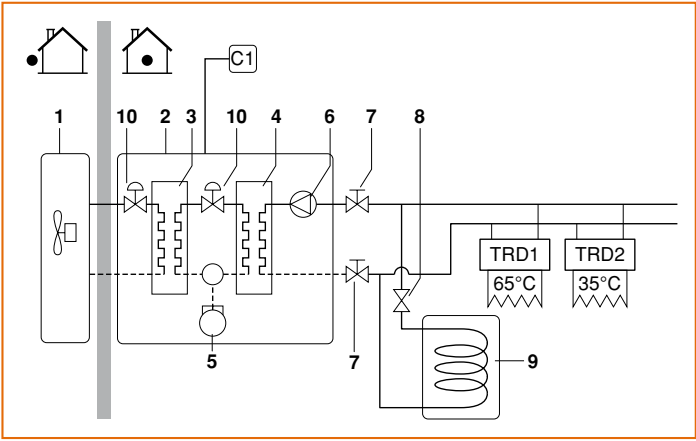
- | | |
|---------------------------------------|----------------------------------|
| 1. Outdoor unit | 11. Radiator (field supply) |
| 2. Indoor unit | 12. Electronic expansion valve |
| 3. Refrigerant heat exchanger | 13. By-pass valve (field supply) |
| 4. Water heat exchanger | |
| 5. Compressor | C1 Remote controller |
| 6. Pump | T Room thermostat |
| 7. Shut-off valve | A Installation place |
| 8. Motorized 3-way valve (optional) | B Living room |
| 9. Domestic hot water tank (optional) | |
| 10. Collector (field supply) | |

4. Space heating provided through under floor heating.

For floor heating applications in combination with radiators the water temperature delivered by the Daikin system is too high. For this reason a temperature reducing device (field supply) is required to lower the water temperature (the hot water will be mixed with cold water to lower the temperature). The control of this field supplied feature is not done by the heat pump system. The operation and configuration of the field water circuit is the responsibility of the installer. Daikin only offers the possibility to have multiple set points on request.

Pattern A

The domestic hot water tank is installed in parallel with the mixing station(s). This allows operating the unit in space heating and domestic water heating simultaneously. The balancing of the water distribution is in this case the responsibility of the installer.



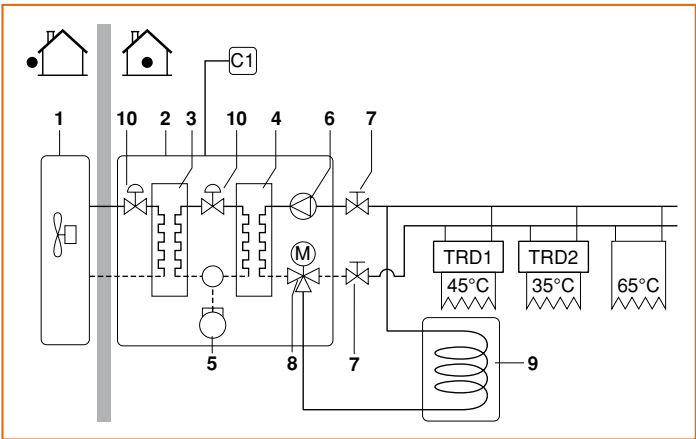
Configuration example:

	Set point	Field setting	Thermo status				
Domestic hot water	70°C ^(a)	[b-03]	OFF	ON	OFF	OFF	OFF
Space 1	65°C	[A-03]	OFF	ON/OFF	ON	ON	OFF
Space 2	35°C	[A-04]	OFF	ON/OFF	ON	ON	ON
Resulting heat pump water			OFF	>70°C	65°C	65°C	35°C

- 1. Outdoor unit
 - 2. Indoor unit
 - 3. Refrigerant heat exchanger
 - 4. Water heat exchanger
 - 5. Compressor
 - 6. Pump
 - 7. Shut-off valve
 - 8. Valve (field supply)
 - 9. Domestic hot water tank (optional)
 - 10. Electronic expansion valve
- > C1 Remote controller
 - > TRD1 Temperature reducing device 1
 - > TRD2 Temperature reducing device 2

Pattern B

The domestic hot water tank is installed in a separate circuit (with a 3-way valve) of the temperature reducing device(s). This configuration does not allow simultaneous domestic hot water and space heating operation.



Configuration example:

	Set point	Field setting	Thermo status				
Space 0	65°C	Remote controller	OFF	ON	OFF	OFF	OFF
Space 1	45°C	[A-03]	OFF	ON/OFF	ON	ON	OFF
Space 2	35°C	[A-04]	OFF	ON/OFF	OFF	ON	ON
Resulting heat pump water			OFF	65°C	45°C	45°C	35°C

- 1. Outdoor unit
 - 2. Indoor unit
 - 3. Refrigerant heat exchanger
 - 4. Water heat exchanger supply)
 - 5. Compressor
 - 6. Pump
 - 7. Shut-off valve (slave)
 - 8. Motorized 3-way valve (optional)
 - 9. Domestic hot water tank (optional)
 - 10. Collector (field supply)
 - 11. Radiator (field supply) exchanger
 - 12. Electronic expansion valve
 - 13. By-pass valve (field supply)
- > C1 Remote controller (master)
 - > C2 Optional remote controller
 - > A Installation place
 - > B Living room

2A/TECHNICAL DATA - SPLIT



INDOOR UNIT



			SINGLE PHASE			THREE PHASE		
			EKHBRD011AV1	EKHBRD014AV1	EKHBRD016AV1	EKHBRD011AY1	EKHBRD014AY1	EKHBRD016AY1
Function			Heating only			Heating only		
Dimensions	HxWxD	mm	705x600x695			705x600x695		
Leaving water temperature range	heating	°C	25~80			25~80		
Material			Precoated sheet metal			Precoated sheet metal		
Colour			Metallic grey			Metallic grey		
Sound power level		dB(A)	59	60	60	59	60	60
Sound pressure level ¹		dB(A)	38	39	42	38	39	42
Sound pressure level ²		dB(A)	43	43	43	43	43	43
Weight		kg	144.25			147.25		
Refrigerant	Type		R-134a			R-134a		
	Charge	kg	3.2			3.2		
Power supply			1~/50Hz/220-240V			3~/50Hz/380-415V		
Recommended fuses			A 32			16		

¹ Measuring conditions: EW: 55°C, LW: 65°C; 1m in front of unit; integrated design (+ tank)

² Measuring conditions: EW: 70°C, LW: 80°C; 1m in front of unit; integrated design (+ tank)



OUTDOOR UNIT



			SINGLE PHASE			THREE PHASE		
WITH BOTTOM PLATE HEATER ³			ERRQ011AV1	ERRQ014AV1	ERRQ016AV1	ERRQ011AY1	ERRQ014AY1	ERRQ016AY1
WITHOUT BOTTOM PLATE HEATER ³			ERSQ011AV1	ERSQ014AV1	ERSQ016AV1	ERSQ011AY1	ERSQ014AY1	ERSQ016AY1
Dimensions	HxWxD	mm	1,345x900x320			1,345x900x320		
Nominal capacity	heating	kW	11	14	16	11	14	16
Nominal input ¹	heating	kW	3.57	4.66	5.57	3.57	4.66	5.57
COP ¹			3.08	3.00	2.88	3.08	3.00	2.88
Nominal input ²	heating	kW	4.40	5.65	6.65	4.40	5.65	6.65
COP ²			2.50	2.48	2.41	2.50	2.48	2.41
Operation range	heating	°C	-20~20			-20~20		
	domestic water	°C	-20~35			-20~35		
Sound power level	heating	dB(A)	68	69	71	68	69	71
Sound pressure level	heating	dB(A)	52	53	55	52	53	55
Weight		kg	120			120		
Refrigerant charge	R-410A	kg	4.5			4.5		
Power supply			1~/50Hz/230V			3~/50Hz/400V		
Recommended fuses			A 32			16		

¹ Measuring conditions: EW: 55°C, LW: 65°C, $\Delta T = 10^\circ\text{C}$; ambient conditions: 7°CDB/6°CWB

² Measuring conditions: EW: 70°C, LW: 80°C, $\Delta T = 10^\circ\text{C}$; ambient conditions: 7°CDB/6°CWB

³ bottom plate heater = anti freeze protection for cold climates

2B/ TECHNICAL DATA - OPTIONS



DOMESTIC HOT WATER TANK

			EKHTS200A	EKHTS260A
Water volume	I		200	260
Max. water temperature	°C		75	
Dimensions	HxWxD	mm	1,335x600x695	1,610x600x695
Dimensions - integrated on indoor unit	HxWxD	mm	2,010x600x695	2,285x600x695
Material outside casing	Precoated sheet metal			
Colour	Metallic grey			
Empty weight	kg		70	78
Tank	Material	Stainless steel (DIN 1.4521)		

DOMESTIC HOT WATER TANK WITH SOLAR CONNECTION



			EKHWP300A	EKHWP500A
Mounting method	Floor standing			
Casing colour	Dusty grey - RAL 7037			
Casing material	Impact resistant polypropylene			
Water volume	I		300	500
Maximum water temperature	°C		85	85
Dimensions	HxWxD	mm	1,590x595x615	1,590x790x790
Empty weight	kg		67	100
Domestic hot water heat exchanger	Material		Stainless steel 1,4404	
	Volume	I	27.8	28.4
	Maximum operation pressure	bar	6	6
	Heat exchanger surface	m²	5.7	5.9
	Average specific thermal output	W/K	2,795	2,860
Charging exchanger	Material		Stainless steel 1,4404	
	Volume	I	12.3	17.4
	Heat exchanger surface	m²	2.5	3.7
	Average specific thermal output	W/K	1,235	1,809
Auxiliary solar heating exchanger	Material		Stainless steel 1,4404	
	Volume	I	-	5
	Heat exchanger surface	m²	-	1.0
	Average specific thermal output	W/K	-	313



PUMP STATION

			EKSRS3
Mounting method	On side of tank		
Dimensions	HxWxD	mm	815x230x142
Power supply	230V / 50 Hz		
Max. electric power consumption	245		
Control	Digital temperature difference controller with plain text		
Max. electric power consumption of the control unit	W		2
Solar panel temperature sensor	Pt1000		
Storage tank sensor	PTC		
Feed temperature and flow sensor (option)	Voltage signal (3,5V DC)		



SOLAR COLLECTOR

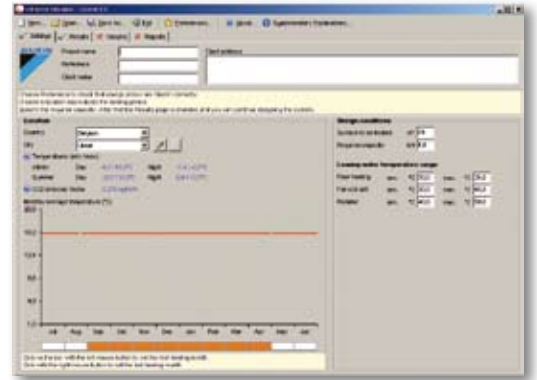
			EKSV26P	EKSH26P
Position	Vertical			Horizontal
Dimensions	HxWxD	mm	2,000x1,300x85	1,300x2,000x85
Outer surface	m²		2.60	
Absorber surface	m²		2.36	
Weight	kg		42	
Water content	I		1.7	2.1
Absorber	Harp-shaped copper pipe register with laser-welded highly selective coated aluminum plate			
Coating	Micro-therm (absorption max. 96%, emission ca. 5% +/- 2%)			
Glazing	Single pane safety glass, transmission +/- 92%			
Heat insulation	Mineral wool, 50mm			
Max. pressure drop at 100l/min	mbar		3	0.5
Allowed roof angle	15° to 80°			
Max. standstill temperature	°C		200	
Max. operating pressure	bar		6	

The collectors are standstill resistant over a long period and are tested for thermal shock. Minimum collector yield over 525kWh/m² at 40% covering proportion, location Würzburg, Germany.

SELECTION SOFTWARE

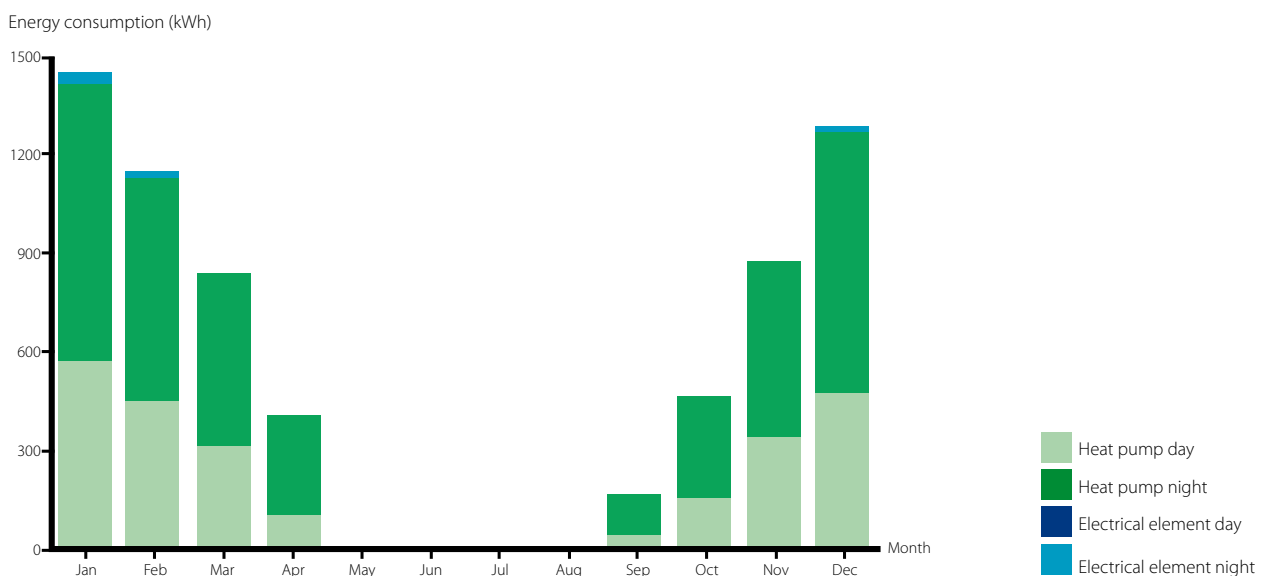
Daikin Altherma software programme allows quick and easy indication of the benefits of an Daikin Altherma system.

By specifying a number of parameters such as the location, the surface area to be heated, the required heating capacity, the entry and exit water temperatures of the distribution network and the local energy prices, the programme displays the following simulation details:



1. Material list with technical specification
2. Simulation graphics:
 - a) Required and available heating capacity with indication of the SPF (or Seasonal COP)
 - b) Duration of the heating period as a function of the outside temperature
 - c) The annual energy cost compared with a heating system using gas or fuel oil
 - d) The annual amount CO₂ emitted in tonnes compared with a heating system using gas or fuel oil
 - e) The monthly energy consumption in kWh
 - f) The monthly energy cost in €
 - g) The total amount of thermal energy in kWh as a function of the outside temperature
 - h) The radiated heat per m² (in kWh/m²) per month

All data is collected in a separate report. If you are interested in this software, contact your local distributor





DID YOU KNOW ... ?

Daikin has more than 50 years of experience with heat pumps and provides more than a million of them to homes and commercial applications each year.



DAIKIN, YOUR RELIABLE PARTNER

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

HIGH-QUALITY, INNOVATIVE PRODUCTS

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

A CLEAN ENVIRONMENT

When your customer brings a Daikin product into his home, he is also making a significant contribution to the environment. In producing your customer's comfort 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.



Daikin's unique position as a manufacturer of air conditioning 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 Altherma high temperature units are not in scope of the Eurovent certification programme.



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