

all-in-one  
**Comfort**  
for residential & commercial  
applications

CATALOGUE 2013



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DAIKIN ALTHERMA  
HEATING CATALOGUE

Heating, domestic hot water and cooling

# Sustainable energy solutions

for residential and commercial use

You and your customer have decided to switch to an energy-efficient heating system that produces low CO<sub>2</sub> emissions. Daikin Altherma is a **total heating and domestic hot water system** based on air and ground source heat pump technology. One that represents a flexible and cost-effective alternative to a fossil fuel boiler. It also has an option for cooling.\* The inherent energy-efficiency characteristics of Daikin Altherma make it an ideal solution for **reduced energy consumption and low CO<sub>2</sub> emissions**. Its high- and low-temperature heating systems provide optimal comfort. Highly **energy-efficient** heat pumps with advanced compressor technology transform unused and inexhaustible heat from the surrounding air into usable heat, either as part of the overall climate-control system or to heat domestic hot water. Moreover, the system is easy to install.

\*The Daikin Altherma cooling option is available for low-temperature heating systems (under floor heating system, heat pump convectors).

# & efficient







Offer your customer the benefits of Daikin technology	6
Top energy-efficient solutions for every application	10
<b>Heating, domestic hot water and cooling for replacement of a gas boiler</b>	
Daikin Altherma hybrid heat pump	12
› New opportunities in residential heating	14
› End user benefits	17
› Installer benefits	18
› Wholesaler benefits	19
<b>Heating &amp; domestic hot water for replacement of an oil boiler</b>	
Daikin Altherma high temperature	20
› Outdoor & indoor unit - Split system	24-25
› Domestic hot water tank	26
› Solar connection	27
<b>Heating, domestic hot water and cooling for new houses</b>	
Daikin Altherma low temperature	30
› Outdoor & indoor unit - Split system	32
› Monobloc system	42
› Heat pump convactor	46
› Solar connection	47
<b>Heating and domestic hot water for new build and replacement of oil boilers</b>	
Daikin Altherma ground source heat pump	48
› High seasonal efficiency	51
› Quick and easy installation	53
› Compact indoor unit with pleasing design	54
› New user interface	55
<b>Heating, domestic hot water and cooling for residential and commercial applications</b>	
Daikin Altherma Flex Type	56
› 8 benefits 4 any application	58
› Two Daikin technologies combined	60
› Domestic hot water tank	62
› Easy control	63
› Heat pump convactor	66
<b>Selection tools</b>	68
› Selection and simulation software for new houses and renovations	70
› Selection and design software for apartment buildings and collective housing	71
<b>Technical specifications</b>	72

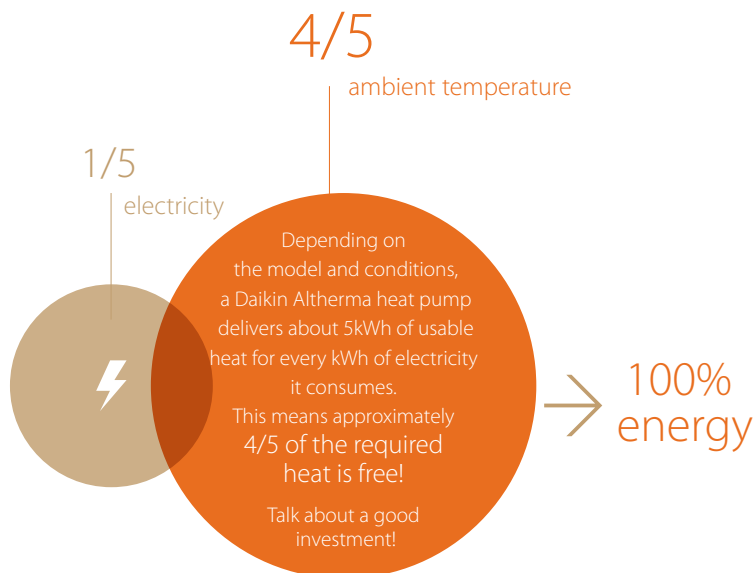
# Offer your customer the benefits of Daikin technology

## → 1. ENERGY EFFICIENT OPERATION

The heat pump from Daikin Altherma uses a **sustainable energy source**. In fact, it extracts heat from the outside air or the ground. The system consists of a closed circuit containing a refrigerant or brine. A thermodynamic cycle is created through evaporation, compression, condensation and expansion.

A heat pump “pumps” heat from a low to a higher temperature level. The heat raised is transferred to the water distribution system (under floor heating, low-temperature radiators, heat pump convectors 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.

### Two basic concepts of heat pump technology



Example based on Daikin Altherma low temperature split (EHBX04C3V/ERLQ004CV3)

### 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.

## Energy savings calculator

Go to [ecocalc.daikin.eu](http://ecocalc.daikin.eu) and see how a Daikin Altherma heat pump saves on both running costs and CO<sub>2</sub> emission.



\* Simulation for a new build detached house (room in roof) with low temperature emitters, for 4 people and a heated surface of 125m<sup>2</sup>, taking into account Belgian climate conditions, an electricity price of 0.17 EUR/kWh and a gas price of 0.06 EUR/kWh.

## → 2. DAIKIN ALTHERMA: THE ECONOMICAL ALTERNATIVE

Daikin Altherma heats up to 5 times more efficiently than a traditional heating system based on fossil fuels or electricity, achieving an excellent coefficient of performance (COP) rating of 5.04\*. By making use of the heat in the outside air, the system uses much less energy while your customer can still enjoy a 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.

## → 3. LOW CO<sub>2</sub> EMISSIONS

Daikin Altherma keeps CO<sub>2</sub> emissions at a minimum, so you personally contribute to a better environment. The pump does use electricity, but even without renewable electricity the CO<sub>2</sub> emissions are still much lower than traditional boilers.

\*EHV(H/X)04C OR EHB(H/X)04C WITH ERLQ004CV3 - TA DB/WB 7°C/6°C - LWC 35°C (DT=5°C)

## → 4. LOW INSTALLATION COST

Daikin Altherma air to water heat pumps take heat from the air. No digging or excavation works are required. Both the outdoor and indoor units are compact. The outdoor unit can be located easily outside any building, including flats.



## Ecolabel

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

Daikin Altherma low temperature with under floor heating received the EU Ecolabel\* because it has a higher energy efficiency and a lower global warming impact than other heat pump products in its class.



\* Scan this QR code for more information and the latest overview of certified products on [daikin.eu](https://daikin.eu)



## 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 by a renewable energy source. As a result, several heat pump incentives are already available to homeowners.

\* EU objective COM (2008) /30 final

## 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!



## → 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.



# Daikin introduces 2 new systems

## THE INTELLIGENT SOLUTION

With many gas boilers reaching the end of their lives and customers seeking more energy efficient solutions as replacements, the Daikin Hybrid leads the way. Our advanced heat pump technology in an outdoor unit is linked to the hydraulics of a gas condensing boiler and used to raise the inflow water temperature. This reduces the energy consumed and the actual usage of the boiler. An efficient use of energy and a major cost saving to customers.

## THE NATURAL CHOICE

Ground source or geothermal heat is the natural choice. The temperature underground is a reasonably constant 10°C all year round and this can be tapped as a heat source which, when combined with a Daikin heat pump, provides free heating during the winter months. This converts to high seasonal efficiency, low operating costs, and an even lower carbon footprint.



# Top energy-efficient solutions for every

## SOURCE TO WATER APPLICATIONS

Heating, domestic hot  
water and cooling  
for replacement  
of a gas boiler

Daikin Altherma hybrid heat pump

p. 12

## AIR TO WATER APPLICATIONS

Heating and  
domestic hot water  
for replacement  
of an oil boiler

Daikin Altherma high temperature

p. 20

## AIR TO WATER APPLICATIONS

Heating, domestic  
hot water and cooling  
for new houses

Daikin Altherma low temperature

p. 30



# application

## BRINE TO WATER APPLICATIONS

Heating and  
domestic hot water  
for new build  
and replacement  
of oil boilers

Daikin Altherma ground source heat pump

p. 48



## AIR TO WATER APPLICATIONS

Heating, domestic hot water and cooling  
for residential and commercial  
applications

Daikin Altherma Flex Type

p. 56



# A new opportunity in

There is a growing demand from home owners to replace heating systems, especially replacing of gas boilers, with more efficient, more cost-effective and more environmentally friendly systems that reduce CO<sub>2</sub> emissions, reduce energy consumption and protect their budget.



The answer is the Daikin Altherma hybrid heat pump.

For space heating, the Daikin Altherma hybrid heat pump will **combine air-to-water heat pump technology with gas condensing technology** by searching for the optimum economical condition for its operation, combining parameters of energy costs (electricity, gas), heat pump efficiency and heat load requirements to deliver up to 35% more heating efficiency, plus major cost savings.

For domestic hot water, the Daikin Altherma hybrid heat pump optimises the operation of the most efficient gas condensing boiler.

## Your benefits

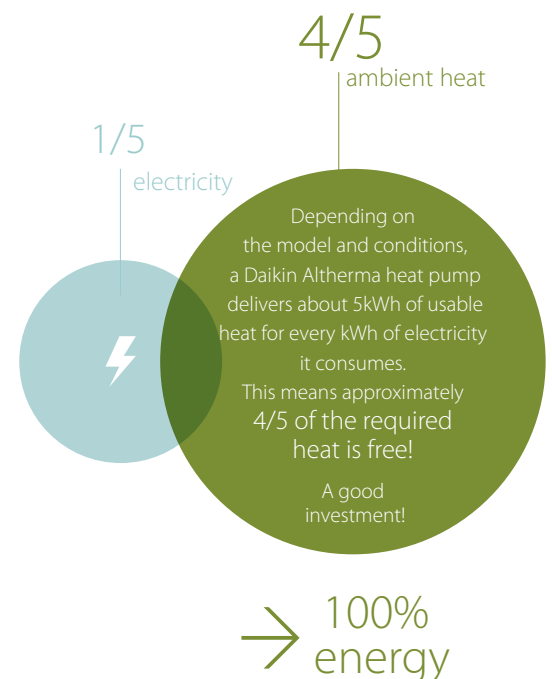
- ✓ Low running costs for heating and domestic hot water
- ✓ Low investment cost
- ✓ Provides sufficient heat in renovation applications
- ✓ Easy and fast installation

# Daikin Altherma hybrid heat pump

# residential heating!

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

The Daikin Altherma air-to-water heat pump uses a sustainable energy source: extracting heat from the outside air. In a closed loop containing a refrigerant, a thermodynamic cycle is created through evaporation, condensation, compression and expansion. This 'pumps' heat from a lower to a higher temperature level. The heat gained is transferred to your home's central heating distribution system via a heat exchanger.



## What is condensing boiler technology?

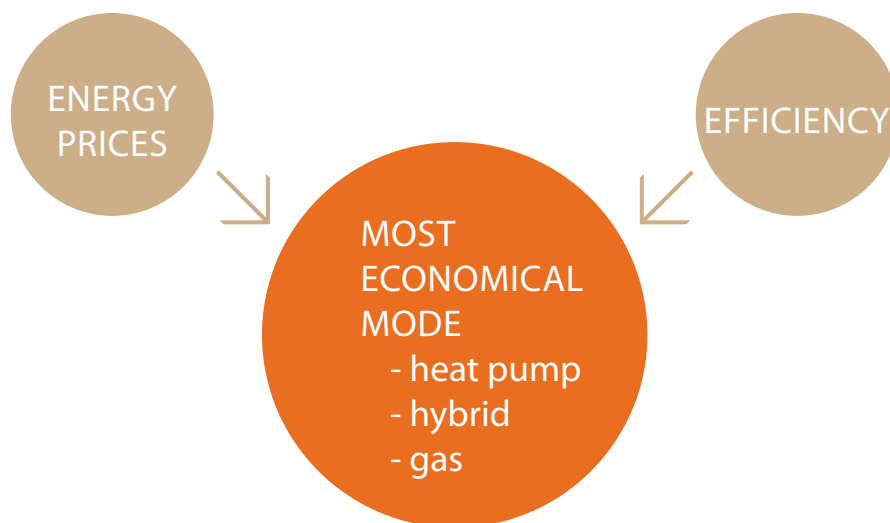
Condensing boiler technology converts the fuel used into usable heat, virtually without loss. This is both good for the environment and your wallet, since lower energy consumption means lower heating costs, less use of energy resources and a reduction in CO<sub>2</sub> emissions. During this process, flue gases are cooled to the extent that the steam they contain is condensed. The energy that is generated is used as heating energy.





## Low running costs for heating and domestic hot water

### → A. SPACE HEATING

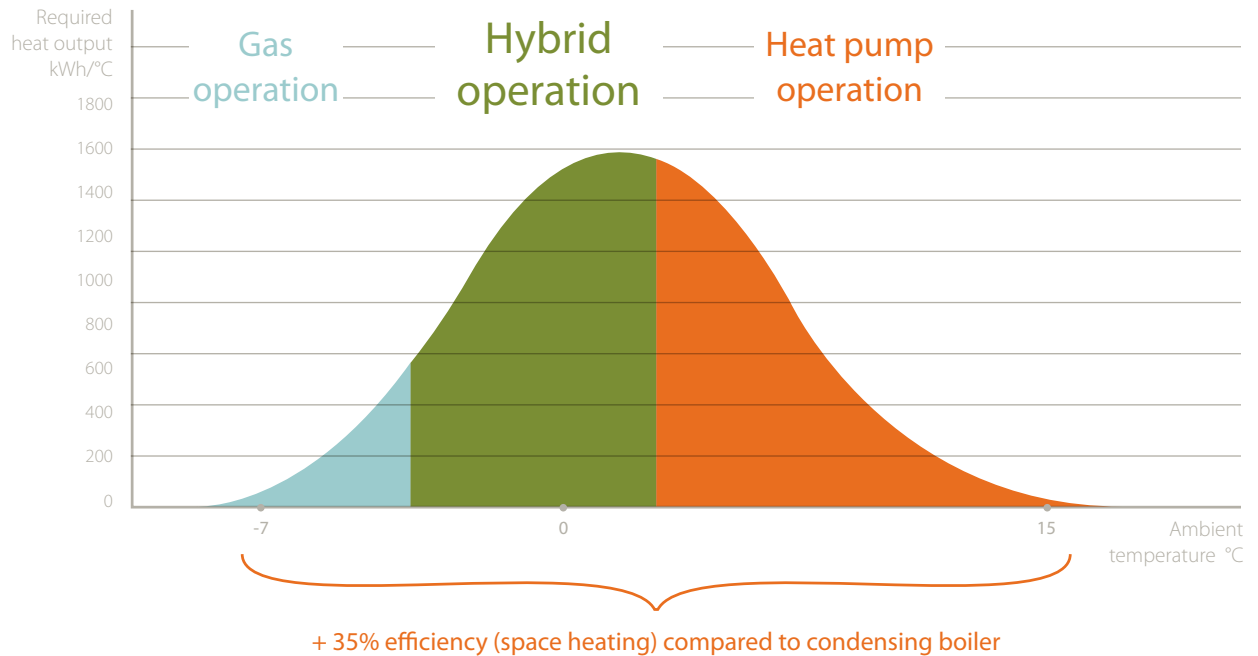


Depending on the outdoor temperature, energy prices and the internal heat load, the Daikin Altherma hybrid heat pump smartly chooses between the heat pump and/or the gas boiler, possibly in simultaneous operation, always selecting the most economical mode to operate.



Looking at an average European climate, the largest part of the required heat output is covered by the hybrid and heat pump operation, resulting in up to 35% more heating efficiency.

Illustration of an average European climate



- Heat load: 14 kW
- 70% heat pump output
- 30% gas boiler output

Heat load = the capacity of the space heating system required to maintain comfortable indoor temperatures at any time.  
 Required heat output = heat load x n° of occurring hours per year

## Heat pump operation

The heat pump integrated in the Daikin Altherma hybrid heat pump is the best available technology for optimizing running costs at moderate outdoor temperatures, resulting in a coefficient of performance of 5.04<sup>(1)</sup>

(1) heating Ta DB/WB 7°C/6°C - LWC 35°C (DT = 5°C)

## Hybrid operation

If a high heat load is required, or to achieve the highest efficiencies at the current conditions, both the gas boiler and heat pump operate at the same time in the most economical way.

The water flow rate will be automatically regulated, in order to have the possibility of lowering the temperature of the water flowing from the radiators to the heat pump and so maximizing heat pump efficiency.

The exact time the switch-over is made from heat pump operation to hybrid operation depends on the house characteristics, energy prices and the requested indoor temperature setting.

## Gas operation

When outdoor temperatures are dropping drastically, it is no longer efficient to operate in hybrid mode. At that point, the unit will switch automatically to gas operation only.

## → B. DOMESTIC HOT WATER

The domestic hot water is heated using gas condensing technology: cold tap water flows directly into a special dual heat exchanger that allows optimal and continuous condensing of the flue gases during domestic hot water preparation, resulting in **an efficiency increase of up to 30%** compared to traditional gas condensing boilers.

Additionally, thanks to the hybrid principle, when space heating is provided by the heat pump, domestic hot water can simultaneously be provided by the condensing technology, resulting in optimal comfort.

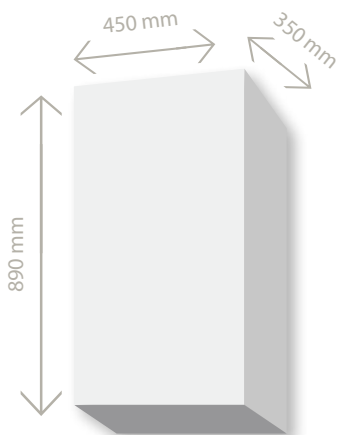


## Low investment benefits

There is no need to replace the existing radiators (up to 80°C) and pipe work as our Daikin Altherma hybrid heat pump connects directly to the existing heating system, thus reducing the cost and disruption of installation. Thanks to the compact dimensions, the space needed for the new system is very similar to that of an existing system, so there is no loss of space and no need for structural modifications.



Daikin Altherma  
hybrid heat pump



Existing gas boiler



# Providing sufficient heat in renovation applications

Several applications are possible using the Daikin Altherma hybrid heat pump as all heat loads are covered up to 32 kW. The gas boiler can be installed without the heat pump in the early stages, in order to quickly restart heating in the case of a breakdown of the existing gas boiler.

## Easy and fast installation

The Daikin Altherma hybrid heat pump is delivered as three large components:

- heat pump outdoor unit
- heat pump indoor unit
- gas condensing boiler

Heat pump outdoor unit



Gas condensing boiler



Heat pump indoor unit

As the heat pump indoor unit and gas condensing boiler are delivered as separate units, they are easier to handle and manipulate, and easier to install.

The heat pump indoor unit is easily mounted on the wall with a standard back plate. With the quick interconnections, the gas condensing boiler is easily attached to the heat pump indoor unit, resulting in a very compact unit.

Similar to all wall mounted gas boilers, all the connections are at the bottom and all the components can be accessed from the front, which makes the unit easy to service and maintain.



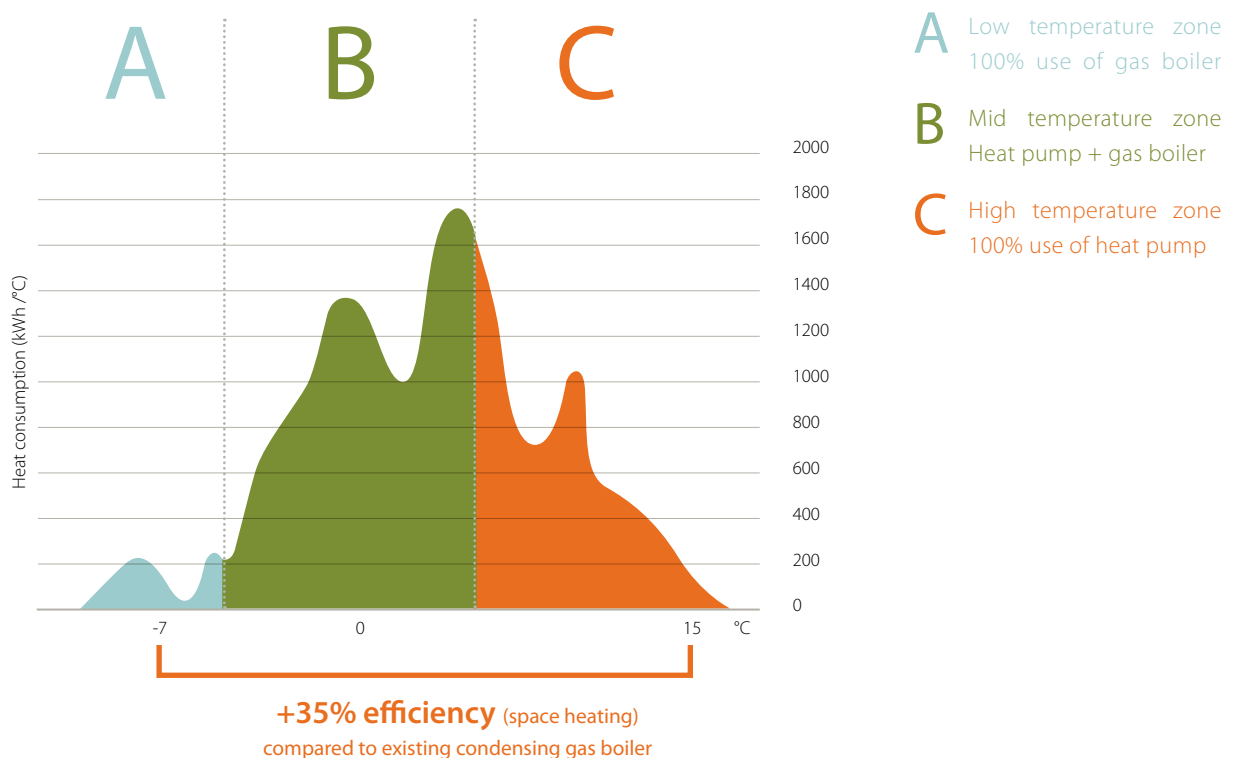
→ Replacing a gas boiler with a Daikin Altherma hybrid heat pump means **saving on running costs for both space heating and the domestic hot water supply**

## Case study

### Running costs comparison versus new gas condensing boiler - Typical Belgian example

With our Daikin Altherma hybrid heat pump, the most cost-efficient combined operation will be used no matter what the ambient outdoor temperature is.

Heat consumption during a typical Belgian winter





	DAIKIN ALTHERMA HYBRID HEAT PUMP	NEW GAS CONDENSING BOILER	EXISTING GAS CONDENSING BOILER
		SPACE HEATING	
Energy supplied by HP	12,800 kWh		
HP efficiency	3.64 SCOP		
Energy supplied by gas boiler	6,700 kWh	19,500 kWh	19,500 kWh
Space heating efficiency	90%	90%	75%
Running costs	1,220 €	1,520 €	1,820 €
		DHW HEATING	
Energy supplied by gas boiler*	3,000 kWh	3,000 kWh	3,000 kWh
DHW heating efficiency*	90%	80%	65 %
Running costs*	230 €	260 €	320 €
		TOTAL	
Running costs	1,450 €	1,780 €	2,140 €

\* for combi-boiler, no separate domestic hot water tank

## → Yearly savings: for space heating and domestic hot water

versus new gas condensing boiler

330 €/year

-19%

versus existing gas condensing boiler

690 €/year

-32%

Heat load	16 kW
Design temperature	-8°C
Space heating off temperature	16°C
Maximum water temperature	60°C
Minimum water temperature	38°C
Gas price	0.070 €/kWh
Electricity price (day)	0.237 €/kWh
Electricity price (night)	0.152 €/kWh
Total space heating requirement	19,500 kWh
Total DHW heating requirement (4 persons)	3,000 kWh

AIR TO WATER APPLICATIONS

Heating & domestic hot water

Ideal for  
replacement of  
an oil boiler

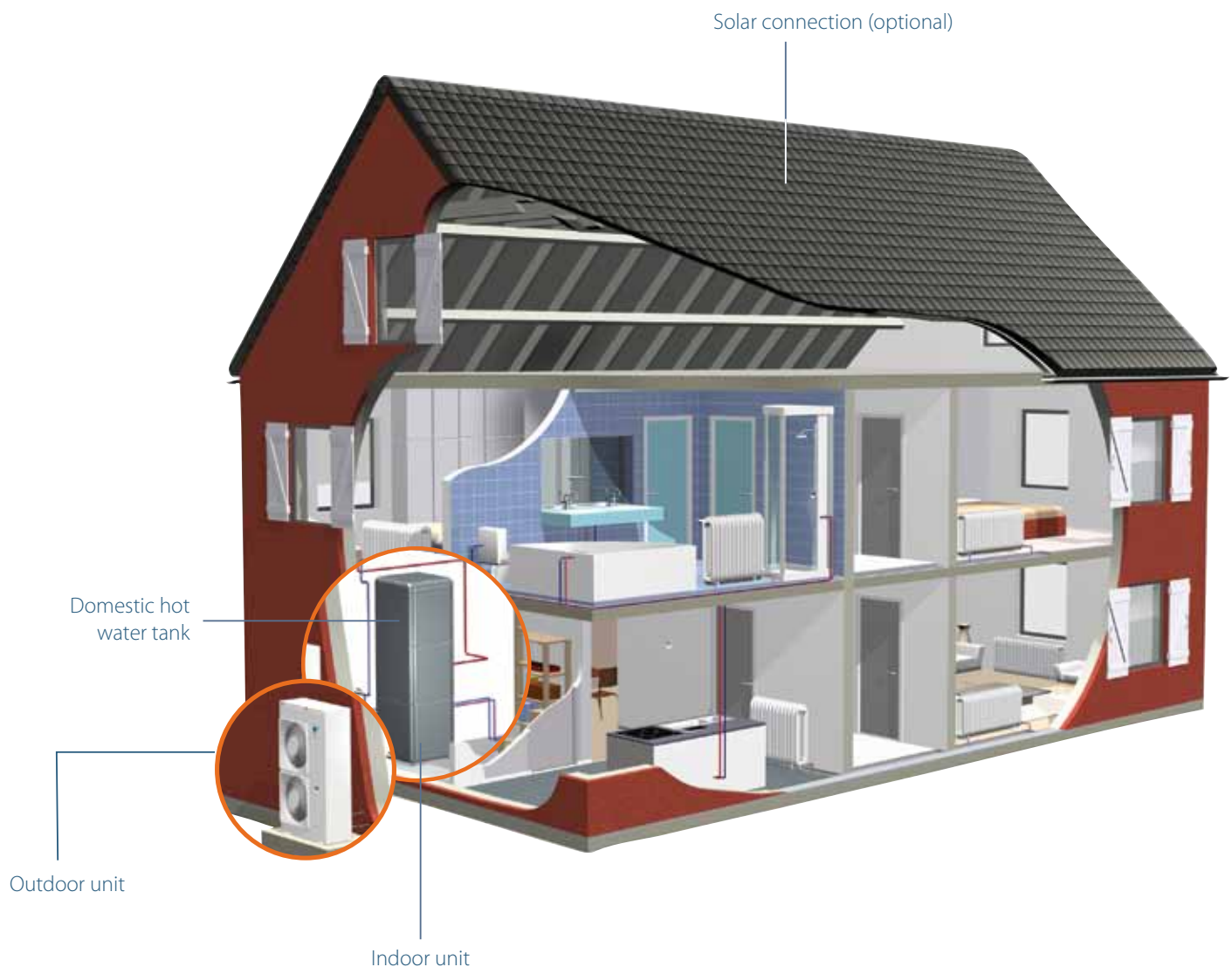
Daikin Altherma high temperature





# For replacement of oil boilers

Daikin Altherma high temperature system offers heating and domestic hot water for your home. This system can perfectly **replace a traditional boiler and connect to the existing piping**. Daikin Altherma high temperature is therefore the ideal solution for renovations. The split system consists of an outdoor unit and an indoor unit and can be completed with solar connection.





## Split system

### A split system consists of an outdoor unit and an indoor unit

The Daikin Altherma outdoor unit includes a heat pump that extracts heat from the outside air resulting in nearly 2/3 of all usable heat coming from a sustainable and free source.

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

Available capacities are 11, 14 and 16 kW. If a greater heating capacity than 16 kW is required, you can now combine several indoor units with one single outdoor unit to give up to 40 kW of heating.

Daikin Altherma high temperature heats up to 3 times more efficiently than a traditional heating system based on fossil fuels or electricity. A lower running cost is thus achieved, while you can still enjoy a stable and pleasant level of comfort.\*

\* COP (Coefficient of Performance) of up to 3.08

## Domestic hot water tank

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 heaters 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.

### Heat emitters

The Daikin Altherma high temperature system is designed to work only with high-temperature radiators, which come in various sizes and formats to suit the interior design as well as the heating requirement. Our radiators can be individually controlled or they can be regulated by the central heating control programme.

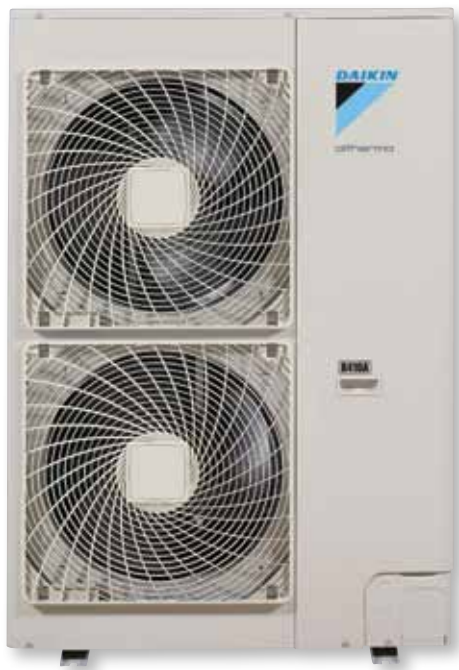
### Solar connection

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.

## → 1. OUTDOOR UNIT AND INDOOR UNIT

### OUTDOOR UNIT

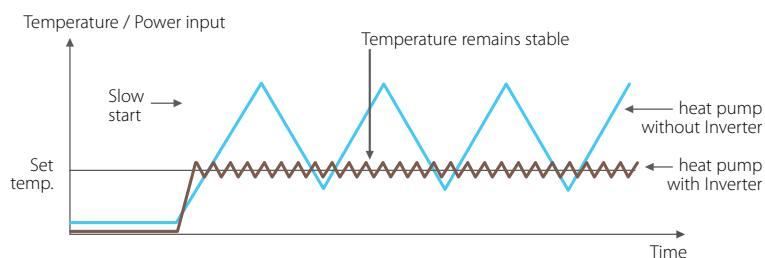
Daikin Altherma high temperature uses 100% thermo-dynamic energy to obtain water temperatures up to 80°C without using an additional heater.



#### 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.

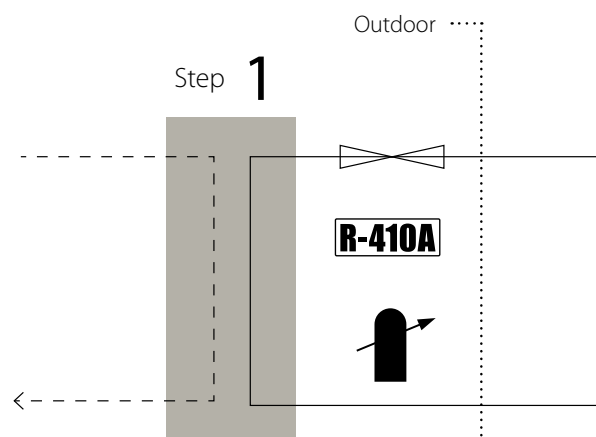
#### Heating operation:



### Daikin Altherma cascade technology .....

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.



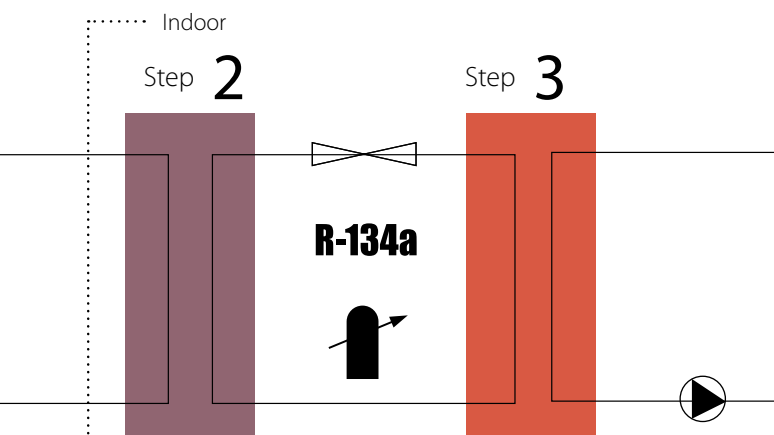


## INDOOR UNIT

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



1. Heat exchanger R-134a ↔ H<sub>2</sub>O
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)



**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. DOMESTIC HOT WATER TANK

Whether your customer wants domestic hot water only or the advantage of solar energy, Daikin offers you the domestic hot water tank that meets his or her requirements.

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.



OR



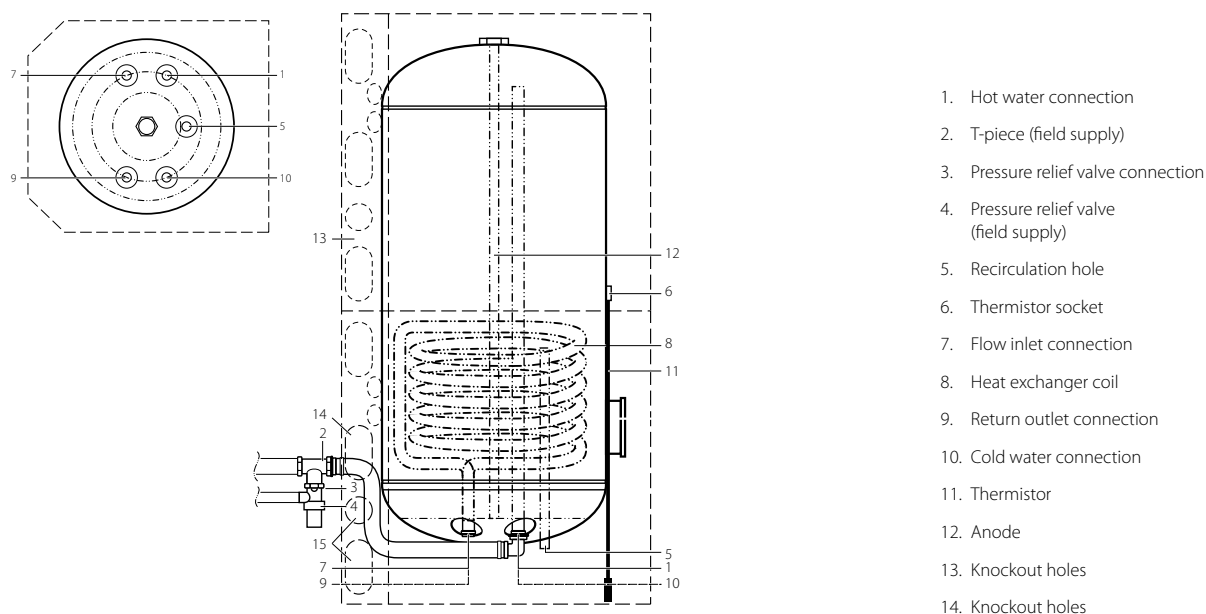
Non-stacked

Stacked

### EKHTS: Domestic hot water tank

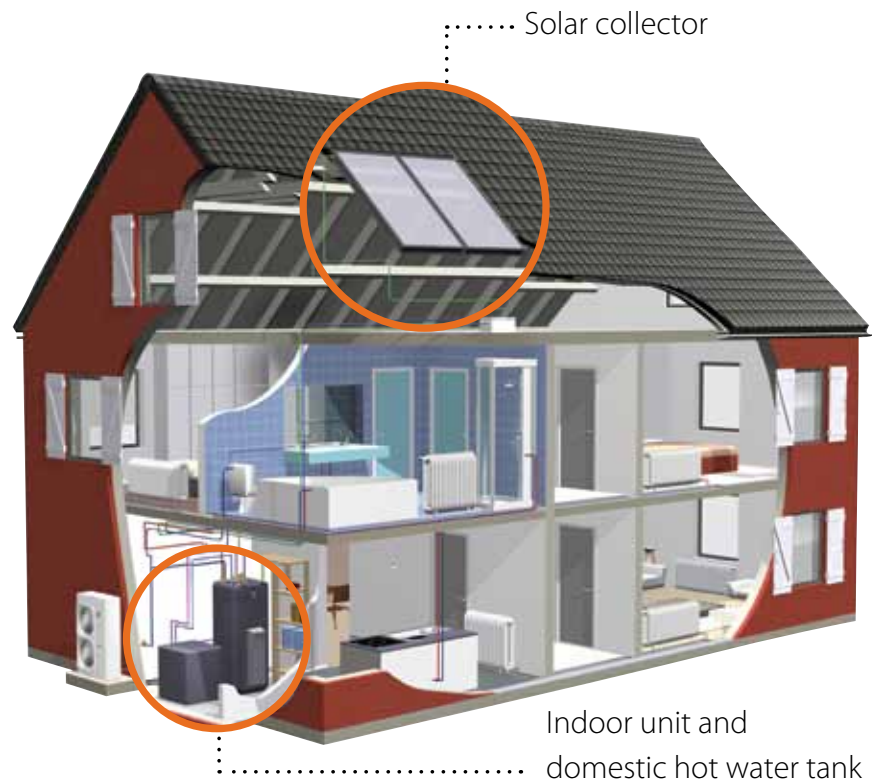
- > Available in 200 and 260 litres
- > Efficient temperature heat-up: from 10°C to 50°C in only 60 minutes\*
- > Heat loss is reduced to a minimum thanks to the high quality insulation
- > At necessary intervals, the indoor unit can heat up the water to 60°C to prevent the risk of bacteria growth.

\* Test done with a 16kW outdoor unit at ambient temperature of 7°C, 200L tank





## → 3. SOLAR CONNECTION



### 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.

### 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!

### EKHWP: domestic hot water tank

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**.

## → 4. EASY CONTROL

### System controller

The user interface controls the high temperature heating system in two 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
- Time scheduler
- Quiet mode
- Domestic water heating mode
- Setback function
- Disinfection function
- Off function



### Optional room thermostat

An external sensor (EKRTETS) can be placed between the under floor heating and the floor, as an option to the wireless 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, the most common of which include:

- Setting the temperature of the room based on measurements from the built-in or external sensor
- Off function (with integrated frost-protection function)
- Holiday function mode
- Comfort and reduced function modes
- Time (day and month)
- Programmable week-timer with 2 user defined and 5 pre-set programmes, with up to 12 actions per day
- Keylock function
- Setting limits. The installer can change the upper and lower limits
- Floor temperature protection \*

\* only in combination with EKRTETS





AIR TO WATER APPLICATIONS

# Heating, domestic hot water and cooling for new

Daikin Altherma offers two low temperature systems both offering **heating and cooling, including a domestic hot water system** all of which connect to the same range of accessories.

## Daikin Altherma low temperature

# houses

A photograph of a modern interior space. In the foreground, a man with a beard, wearing a grey V-neck sweater over a light blue shirt and dark jeans, sits on a dark surface, reading a magazine. Behind him, a blurred figure of a person in a white shirt and dark pants walks across the frame. To the left, a wooden staircase leads up. In the background, there is a white door, a large window looking out onto a garden with pink blossoms, and a balcony with a white railing and a potted plant. The overall atmosphere is bright and contemporary.



# Split system

Whether it is a newly-built house or an existing low-energy home, the Daikin Altherma low-temperature split permits completely integrated components for total climate control.

Will you choose an integrated floor-standing indoor unit to provide heating and domestic hot water, or go for a wall-mounted indoor unit? Does the house use under floor heating, or heat pump convectors? Does the electricity come from the grid, or from a renewable eco-friendly source like solar power?

For all of these situations, **the Daikin Altherma low-temperature system is a total solution for your customer.**





# 4 brand new benefits

## **Best seasonal efficiencies,** providing the highest savings on running costs

With many years of air-to-water heat pump experience and over 150,000 units installed throughout Europe, we continuously strive to optimise Daikin Altherma's performance. This is achieved by a constant focus on limiting electrical inputs during each new product development process, resulting in further reducing the running costs.

## **Perfect fit for new builds,** as well as for low energy houses

The Daikin Altherma low emperature is fully optimised to fulfill the efficiency, comfort and application needs of newly built houses. In addition, the extended product range now offers the perfect solution for low-energy houses, even for very low heat loads.

## **Integrated heating and hot water unit,** saving installation space and time

The new Daikin Altherma low temperature integrated indoor unit is a floor-standing heat pump unit including the domestic hot water tank (available in 180l and 260l). This makes it the easiest and fastest installation when domestic hot water is required, and provides the highest domestic hot water heating efficiency and comfort for the end user in a compact, sleek design. When domestic hot water is preferred in combination with the Daikin Altherma low temperature , the integrated indoor unit is the best solution, for the installer and the end user! A wall-mounted indoor unit is available as well, to offer the best solution in specific situations, e.g. when no domestic hot water heating is required or when a combination with thermal solar energy is preferred.

## **New control panel:** easy to use, commission and service

The Daikin Altherma low temperature is equipped with a new user interface. Commissioning, servicing and day-to-day operation become straightforward the multi-lingual and graphical interface that provides full-text representation, easy menu navigation and intelligent control features.



## → 1. GUARANTEED OPERATION: DAIKIN ALTHERMA IS SUITABLE FOR ALL CLIMATES, EVEN WITHSTANDING SEVERE WINTER CONDITIONS

Daikin is renowned for its know-how related to frost protection on its heat pump range. The outdoor units are specifically designed to avoid ice build-up problems, even in the most severe winter conditions.

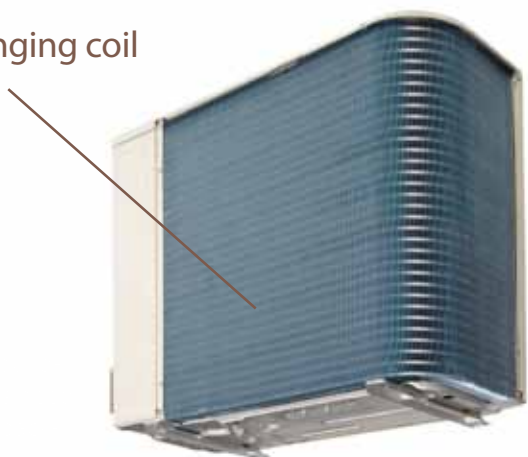
Daikin Altherma low temperature has a guaranteed operation down to an outside temperature of  $-25^{\circ}\text{C}$ . This ensures sufficient heat pump operation for even the coldest climates.

1. The 4-8kW range of Daikin Altherma has a specifically designed casing to avoid the risk of ice formation on the outdoor unit coil.

- The outdoor unit has a free hanging coil, ensuring no ice accumulates in the lower part of the outdoor unit. This is key to offering appropriate frost protection and has the additional advantage that no electrical bottom plate heater is required.
- The discharge grill is also specifically designed to avoid ice accumulation.



Free hanging coil



Our advanced protection against frost and icing means that we can offer the Daikin Altherma across the whole of Europe.



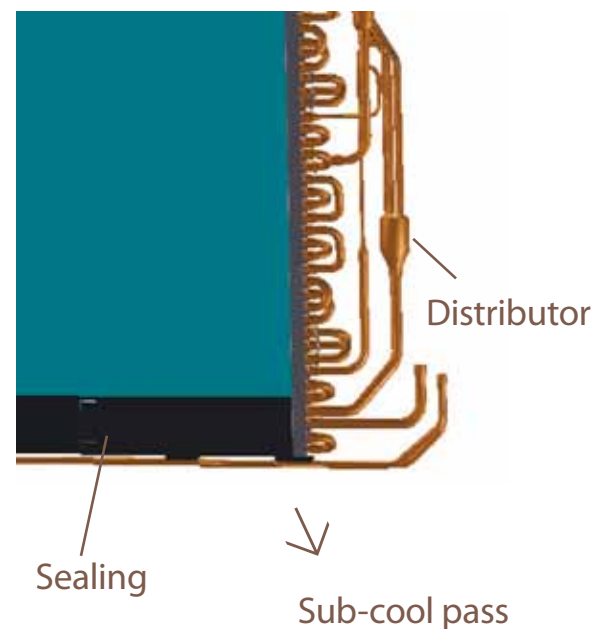
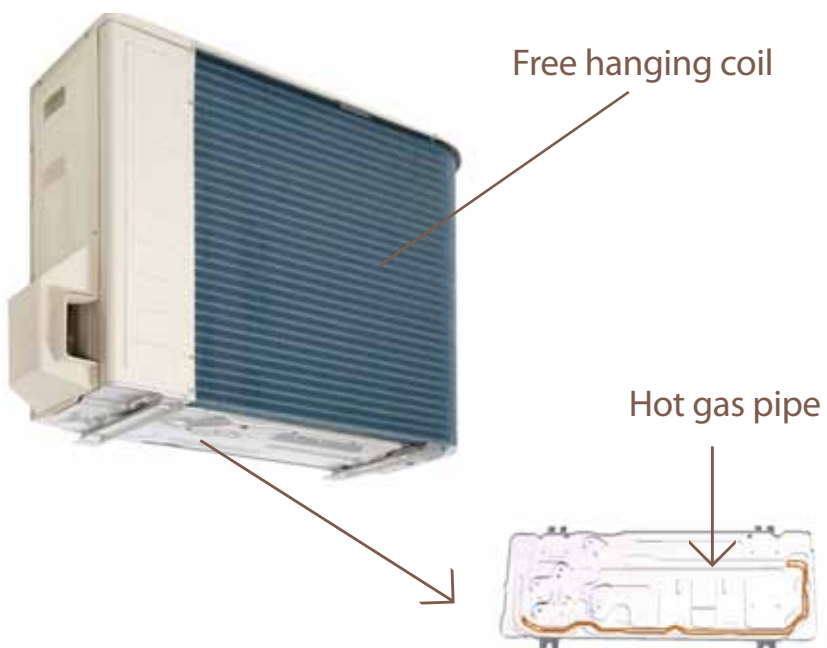
New discharge grille



2. The 11-16kW range of Daikin Altherma (ERLQ-C) has specific frost protection to avoid the risk of ice forming on the outdoor unit coil.

- Hot gas pass: hot gaseous refrigerant coming from the compressor runs through the bottom plate to keep the base free of ice and all the drain holes open
- Sub-cool pass: before the refrigerant pipe is split by the distributor to the hairpins, the refrigerant passes through the bottom of the coil to keep this lower part free of ice

Only a small capacity bottom plate heater is installed (35W) on the ERLQ-C range, with smart operation logic only operating during defrost cycles. This saves around 90% of electricity consumption compared to a traditional heat pump system with a thermostatically controlled bottom plate heater.





## → 2.a EASIEST AND FASTEST INSTALLATION, DOMESTIC HOT WATER TANK INCLUDED

- The stainless steel domestic hot water tank is included in the unit, with all connections between heat pump module and tank factory mounted. This allows for a fast installation compared to a traditional set-up (wall-mounted with separate domestic hot water tank) with only water and refrigerant pipes to be connected.
- All hydraulic components are included (circulating pump, expansion vessel, back-up heater, etc. No need to look for third party components.
- The electric PCB board and hydraulic components are accessible from the front. This ensures easy serviceability and avoids the risk of any damage to electrical components due to water leakages.
- All water and refrigerant connections are at the top of the unit, assuring easy connection and accessibility. This means no connections are required at the back of the unit, resulting in a lower installation footprint.



Components  
are accessible  
from the front

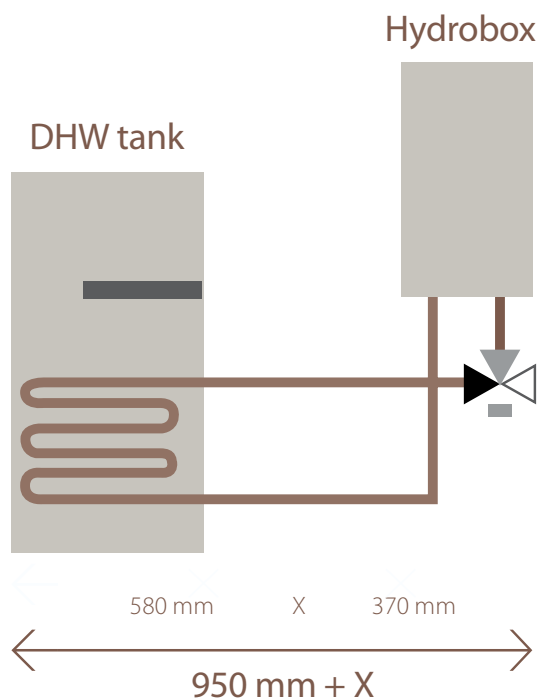


Thanks to the all-in-one design, the installation space is minimised both in terms of footprint and height

1

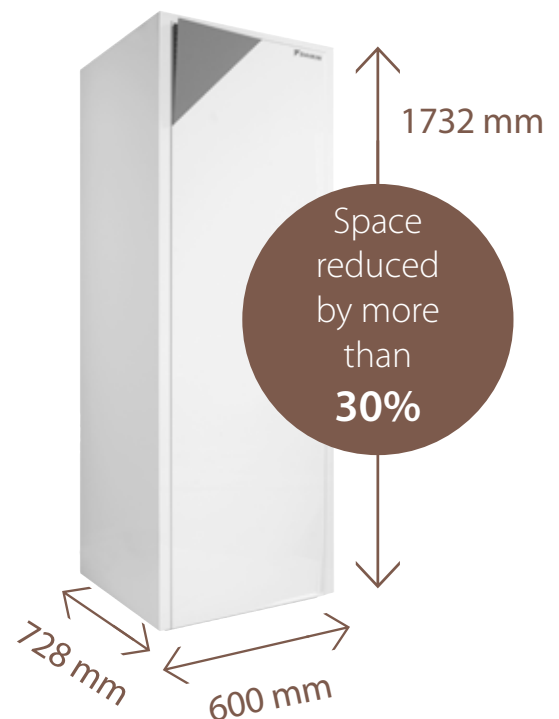
Compared to the traditional split-up version for a wall-mounted indoor unit and separate domestic hot water tank, the integrated indoor unit greatly reduces the installation space required.

## Traditional set-up

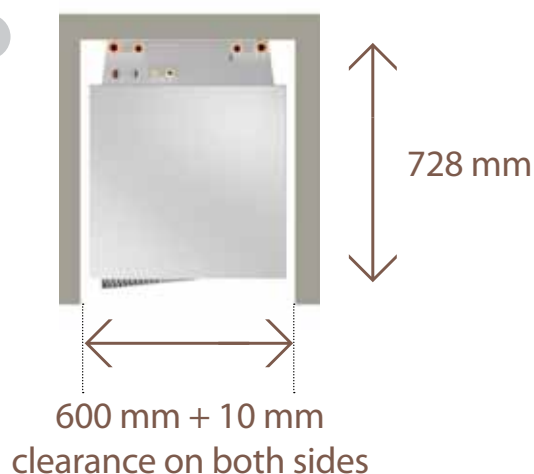


## Integrated indoor unit

VS



2



Smaller footprint: with a width of only 600 mm and a depth of 728 mm, the integrated indoor unit has a similar footprint compared to other household appliances.

Smaller installation footprint: almost no side clearances are required, and no space is required behind the unit for the piping, as the piping connections are at the top. This results in an installation footprint of only 0.45 m<sup>2</sup>.

3

Low installation height: both the 180l and 260l version come with a height of 173 cm. The required installation height is less than 2 m.

4

The compactness of the integrated indoor unit is emphasised by its sleek design and modern look, easily fitting with other household appliances.





### 3. ALTERNATIVE SET-UP: WALL-MOUNTED INDOOR UNIT INCLUDING ALL HYDRAULIC COMPONENTS

The wall-mounted indoor unit is the perfect solution, in certain situations

#### 1. When no domestic hot water is required in combination with the Daikin Altherma system

- All hydraulic components are included in the heat pump unit (circulating pump, expansion vessel, back-up heater, etc), no need to look for third-party components
- All hydraulic components and the PCB board, are accessible from the front for easy serviceability
- Compact unit: 890 mm (height) x 480 mm (width) x 344 mm (depth)
- Small installation space as almost no side clearances are required
- Modern outlook easily fits in with other modern household appliances.

#### 2. The wall-mounted indoor unit can be combined with a separate domestic hot water tank

- EKHWS stainless steel tank: 150l, 200l or 300l
- EKHWE enameled tank: 150l, 200l or 300l.





### 3. When solar connection for hot water is required: 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.

#### Unpressurised thermal hot water

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. 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!

- EKHWP polypropylene tank: 300l or 500l with integrated solar pump station
- High efficiency as no glycol is needed in the system
- Well insulated tank to minimize heat loss
- Support for space heating possible
- Improved frost protection for snow covered solar collectors

#### Pressurised solar system

If needed, a pressurised thermal hot water system can also be offered. The system is filled with heat transfer fluid with the correct amount of antifreeze to avoid freezing in winter. The whole system is pressurised and sealed. A solar kit and solar pump station will be needed to connect the domestic hot water tank (EKHWS or EKHWE) to the solar collector.



## 4. EASY CONTROL

### Quick and easy commissioning

At the first start-up, a **quick configuration wizard** will guide the installer through the commissioning process. Through a series of short questions, the set-up of basic parameters will automatically be completed. Fine-tuning these parameters remains possible using the **menu-based navigation**. As a result of the quick configuration wizard, only the parameter settings relevant to the installation will be shown in the menus. The irrelevant parameters will be hidden and thus inaccessible.

The parameters can be **downloaded to a PC** as a back-up, or be duplicated to other similar installations. If preferred, the parameter settings can also be prepared on beforehand and uploaded to the units during commissioning.

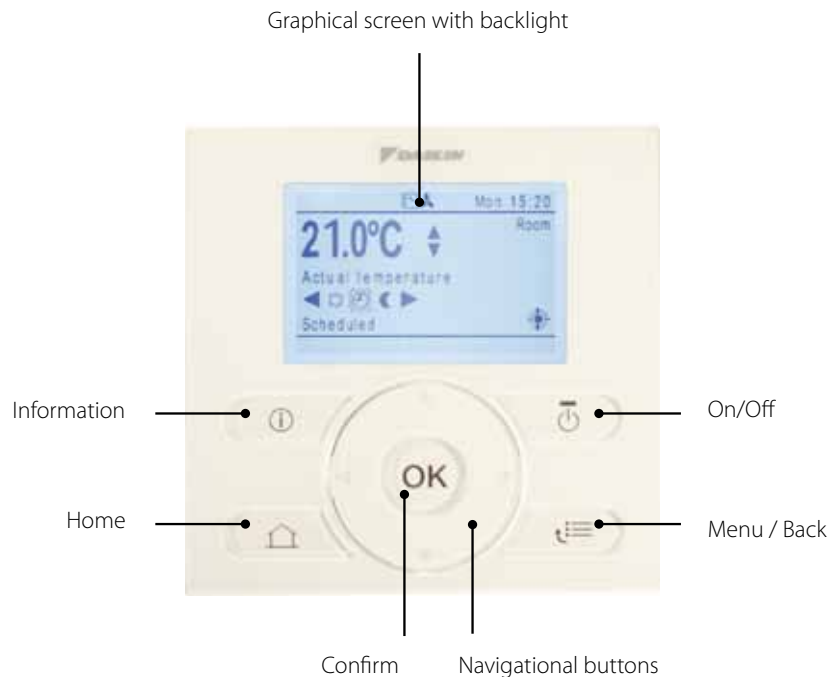
Before the actual test-run of the unit, an **actuator test mode** allows all the wired components to be activated one by one. This allows for a quick and easy check of all connections and wirings made to ensure a correct operation. An **automatic screed drying function** can be activated to proceed through a gradual heat-up of an under floor heating system to avoid cracks in the floor during the first heat-up. Individual and easy-to-programme **schedule timers** for heating, cooling, domestic hot water operation and recirculation noise-sensitive operation and electrical booster heater allow to adjust the operation of the unit to match the end-user's typical daily schedule.

After the commissioning, access to the installer's menu can be restricted (manually or automatically after one hour) to avoid wrong manipulation of the unit by the end-user.

## Easy serviceability

In case something goes wrong, **full-text error messages** will guide the end-user to take appropriate action to try and resolve the problem. If the problem persists and a site intervention is necessary, the service engineer will be able to review the last 20 error occurrences.

Detailed **information on the operational conditions** of the unit, such as the running hours of the different elements, operating temperatures or number of starts, can easily be read out from the extended end-user's menu.



## Room temperature control functionality

The user interface itself is equipped with a temperature sensor and can be installed remotely from the Daikin Altherma low temperature indoor unit.

- Installed on the unit, it will allow quick and easy access to the unit's operating information and settings.
- Installed remotely (e.g. in a living room) it will also act as a room thermostat with more advanced features than a standard room thermostat, resulting in **more stable room temperatures, increased efficiency and operation life cycle**. A second optional interface can still be installed on the unit for service purposes.

## User-friendly with intuitive controls

In the **detailed display mode**, the large graphical display of the user interface displays the actual room temperature and the operation mode of the unit. Depending on the end-user's preference, a simplified basic display is available that shows just the actual room temperature and only allows the room temperature set-point to be changed.

User settings can be accessed through an **intuitive and self-explanatory menu**. This menu will also give access to additional information such as the **energy consumption and heat production of the system**, split up between heating, cooling and domestic hot water operation, enabling close monitoring of the unit's efficient operation.



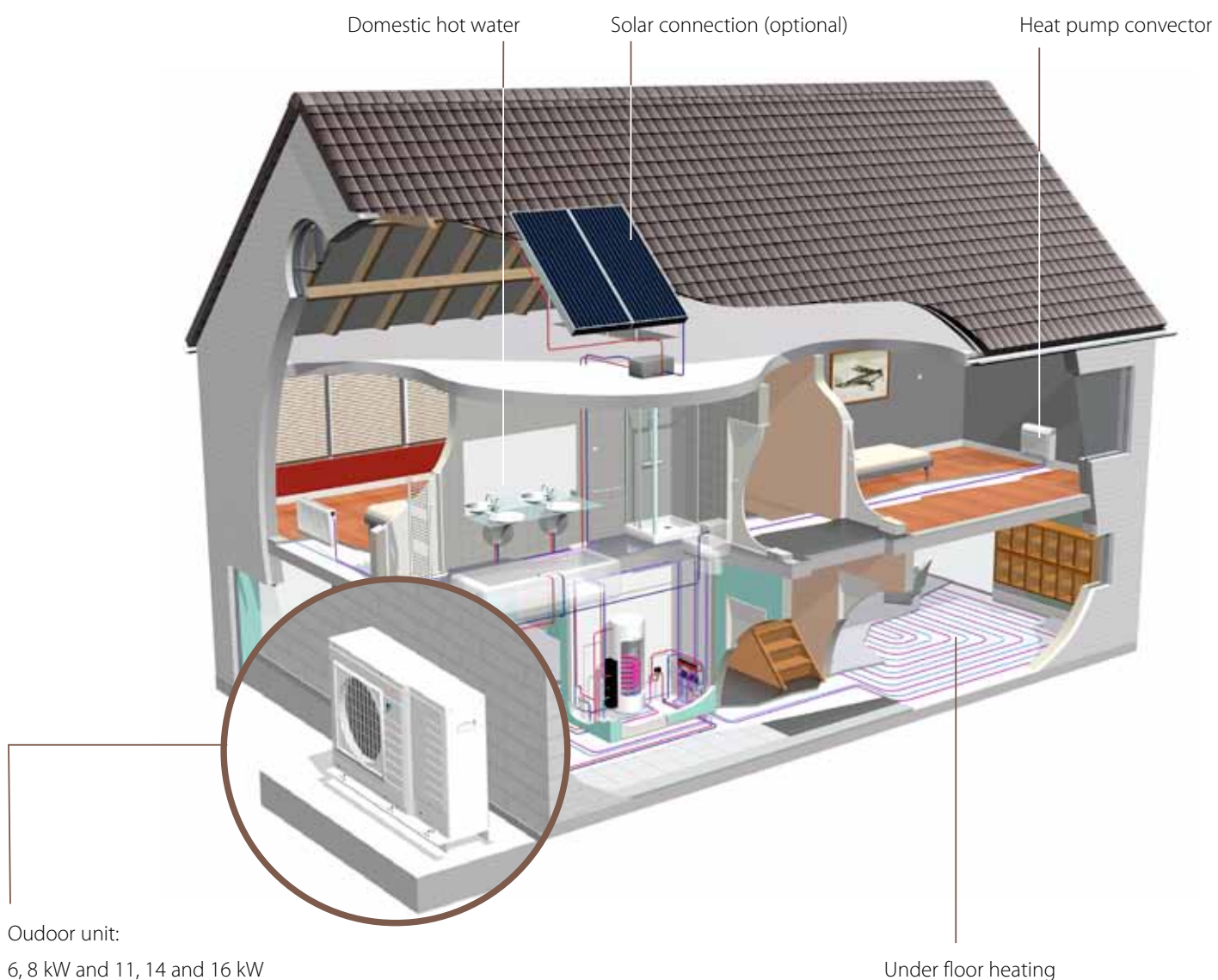
# Monobloc system

## Everything combined in one outdoor unit

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

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

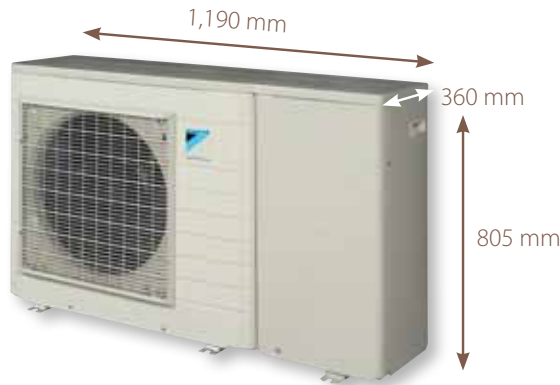
Available capacities for monobloc: 6, 8 kW and 11, 14, 16 kW





## → 1. OUTDOOR UNIT ONLY

### Extra small casing



6kW and 8kW casing

### H<sub>2</sub>O piping, No refrigerant



11kW, 14kW and 16kW casing

### 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.

### Daikin Altherma monobloc is available in the following versions:

- heating only or heating and cooling
- with or without bottom plate heater
- single phase or three phase
- 6kW, 8kW, 11kW, 14kW or 16kW

**Built-in electric back-up heater** as additional heating during extremely cold outdoor temperature. The Daikin Altherma monobloc can be equipped with a 6 kW back-up heater, which can be adjusted to 3 kW (single phase units) or 2 kW (three phase units) by changing the wiring.

If necessary, an optional "in line" back-up heater of 6 kW can be mounted indoors (also adjustable to 2 kW or 3 kW)



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) in thousands of outdoor units.



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). A technology already used in many Daikin heat pumps.

## → 2. DOMESTIC HOT WATER TANK

Whether your customer wants domestic hot water only or the advantage of solar energy, Daikin offers you the domestic hot water tank that meets his or her requirements.

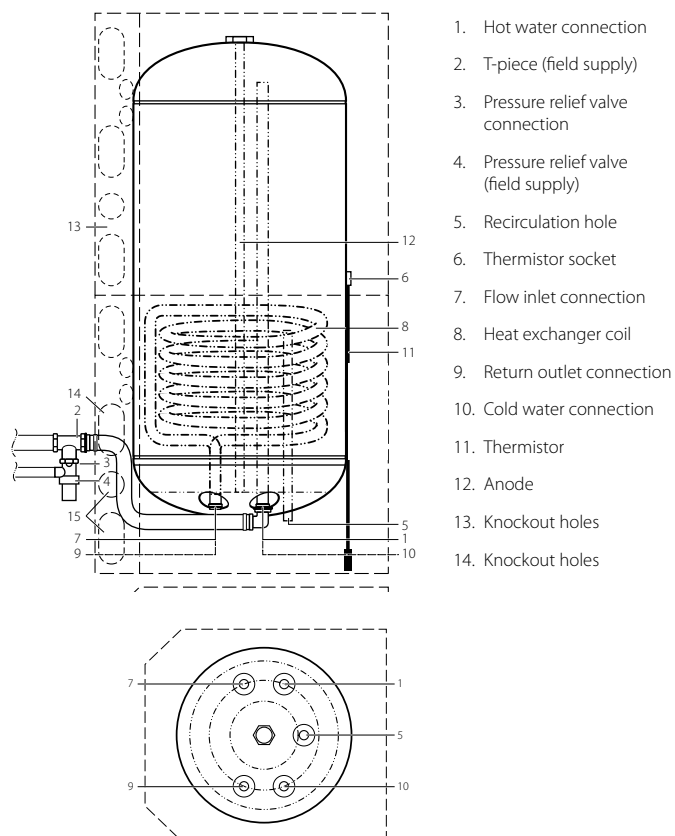
### EKHTS

#### Domestic hot water tank

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.

- Available in 200 and 260 litres
- Efficient temperature heat-up: from 10°C to 50°C in only 60 minutes\*
- Heat loss is reduced to a minimum thanks to the high quality insulation
- At necessary intervals, the indoor unit can heat up the water to 60°C to prevent the risk of bacteria growth.

\* Test done with a 16kW outdoor unit at ambient temperature of 7°C, 200L tank



### EKHWP

#### Domestic hot water tank

- In combination with wall-mounted split and monobloc heating system
- Available in 2 capacities: 300 and 500 litres
  - › Can be combined with unpressurised solar system
  - › Optimised connections
- Easier installation of each system circuit
  - › Improved design: attractive colour and new form
  - › Optimised for easy transport and installation
  - › Better insulation means reduced energy costs
  - › Higher flow-rate thanks to optimised connection technology
  - › Clear connections mean easier installation



## → 3. EASY CONTROL

### System controller

#### 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.



### Optional room thermostat

An external sensor (EKRTETS) can be placed between the under floor heating and the floor, as an option to the wireless 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, the most common of which 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 user defined and 5 pre-set programmes, with up to 12 actions per day
- Keylock function
- Setting limits. The installer can change the upper and lower limits
- Floor temperature protection and protection against condensation for under floor cooling \*

\* only in combination with EKRTETS



# Heat pump convector

The heat pump convector unit can provide both heating and cooling if required, since the heat pump convector is more than just a fan coil unit. The heat pump convector also has a very low noise level.



When combining under floor heating and fan coil units, the low leaving water temperatures, important for efficiency, are adequate for under floor heating, but the fan coil units then need to be oversized in order to emit the proper levels of heat at these low water temperatures. The heat pump convector solves this problem.

The heat pump convector is able to emit the required levels of heat at low leaving water temperatures, while retaining a modest size.

Instead of the leaving water circuit being switched on and off via a thermostat in a single master room, each heat pump convector can be directly wired to the Daikin Altherma indoor unit, the system's intelligence centre. This allows all rooms to have heat when required, regardless of the state of the other rooms.

The heat pump convector saves on running COSTS thanks to the improved efficiency by approximately 25% compared to a heating system that combines under-floor heating and regular fan coil units. The heat pump convector can easily replace existing heat emitters, thanks to its plug and play installation.



# Solar connection



Pressurised solar system

## Unpressurised thermal hot water

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. 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!

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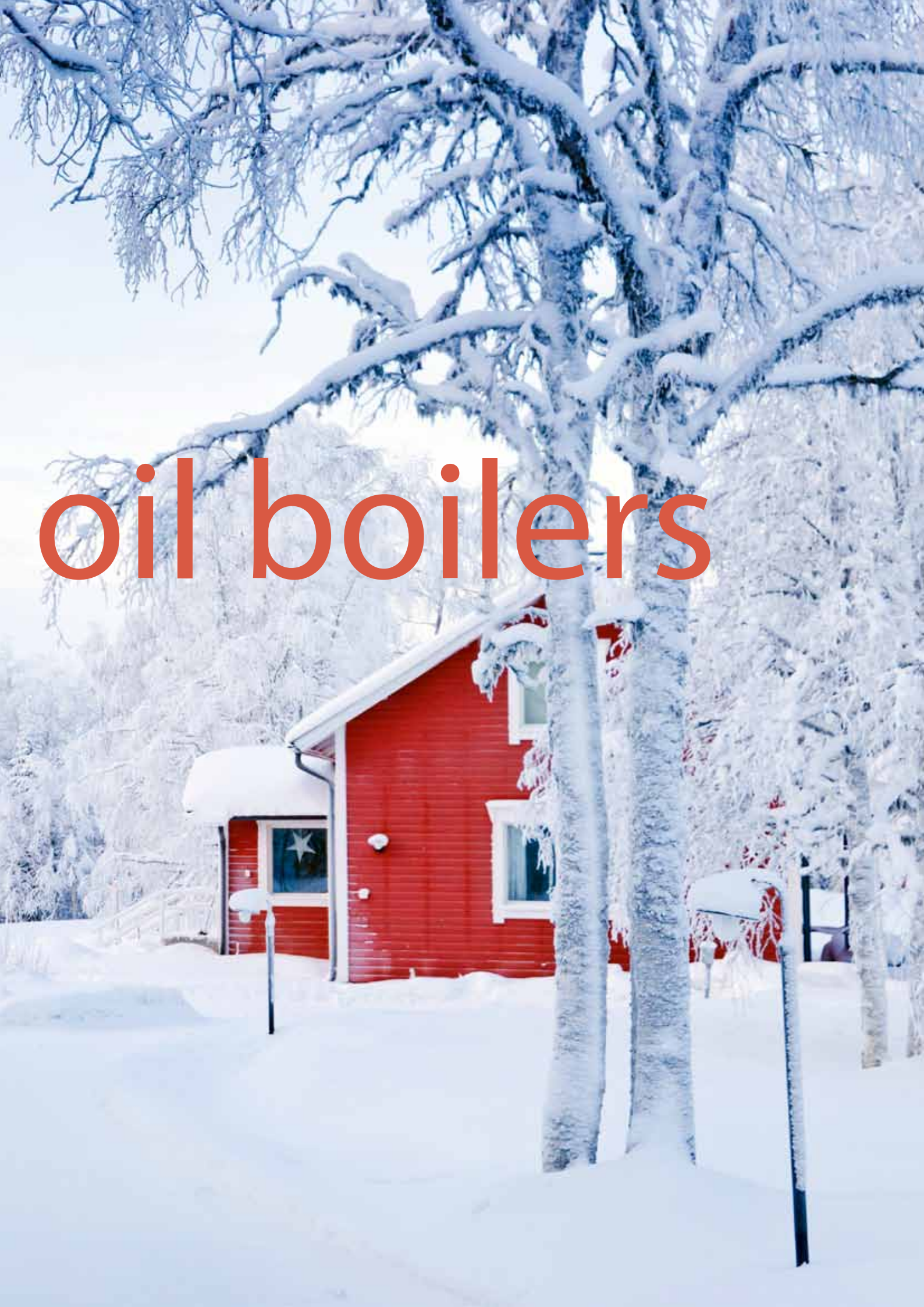




# Heating and domestic hot water for new build and replacement of

Geothermal energy is a free source of energy for heating, and domestic hot water. It delivers enormous **cost savings** in even the coldest climates as the energy is at a relatively constant temperature all year round. The **compact design** of the inside unit requires very little space whilst, at the same time, making the system very **easy and quick to install**. And, once commissioned, our easy, **user-friendly controls** put the user in complete command.

## Daikin Altherma ground source heat pump



oil boilers

# Ground source heat pump



## What is a ground source heat pump?

Even in the coldest climates, geothermal heat is present in the ground resulting in a fairly constant temperature of 10°C at depth of five metres. This trapped energy represents a source of heat that the ground source heat pump at the heart of our system can tap into to heat the home.

Using either a ground probe or a surface collector just below the surface, a water/anti-freeze mixture called 'brine' is pumped round the circuit as a heat transfer medium. The brine then passes into the heat pump unit itself where the heat is transferred to a low evaporation point refrigerant that is compressed to produce heating or domestic hot water.

## Why choose a ground source heat pump?

The simple answer is because it is more efficient than an air-to-water heat pump when the average winter ambient temperature drops below 3°C.

For example, as in the Oslo region more than 70% of heating occurs when the outdoor temperature is below 3°C, the ground source heat pump is the most efficient solution, thanks to having access to a stable energy source that is unaffected by the ambient temperature.

In addition, the Daikin Altherma ground source heat pump has very stable heating capacities at low ambient temperatures and there is no need for an outdoor unit. This delivers two major benefits: firstly, it is easier to install as there is no outdoor unit involved and so no refrigerant connections need to be made, and secondly, there is no de-frost cycle involved and this increases the total indoor comfort levels.

### Making a difference

Due to high efficiencies resulting from our inverter technology, the Daikin Altherma ground source heat pump provides a leading edge performance in comparison to the on/off units that make up the majority of the market.



## → 1. HIGH SEASONAL EFFICIENCY THANKS TO OUR INVERTER HEAT PUMP TECHNOLOGY

The Daikin inverter heat pump technology has been shown to provide an increase in seasonal efficiency of up to 20% when compared to traditional on/off ground source heat pumps.

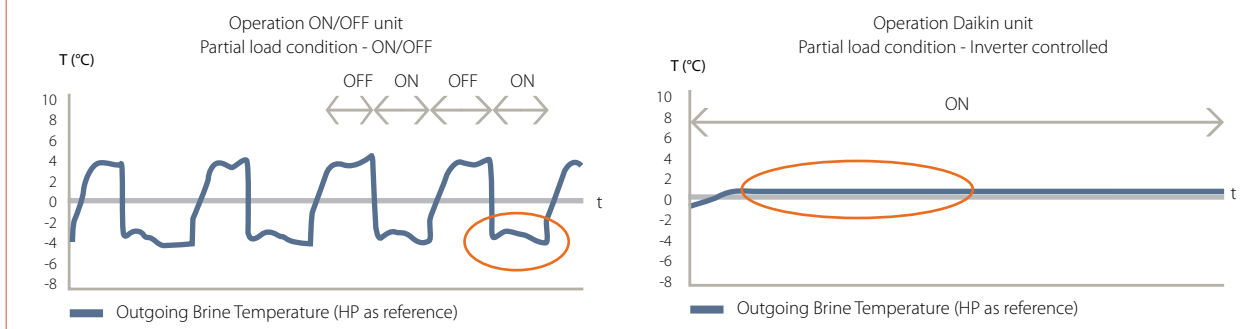
- The brine, a water/anti-freeze mixture that operates as heat transfer medium between the ground and the heat pump, is kept at a higher stable temperature
- Back up operation is reduced to a minimum
- High operating efficiencies of the compressor are reached at partial load operation, i.e. when no full capacity of the unit is required.
- This results in **reduced running costs** and a **faster return on investment**.

### Higher brine temperatures during continuous compressor operation, in partial load conditions

#### Typical application:

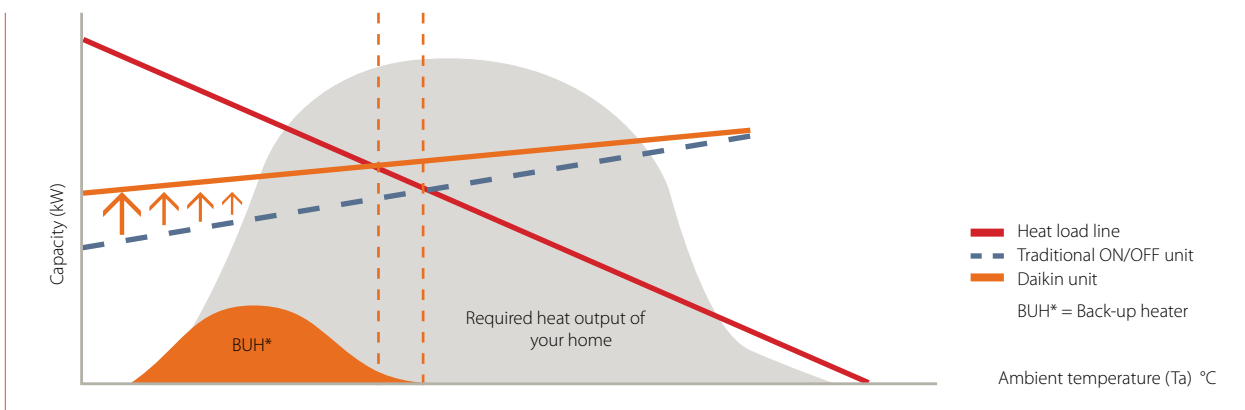
- Location: Sweden
- Design temperature: -17°C
- Heat load: 13kW
- Heating off temperature: 16°C

#### Case study



When no full capacity is required of the system the compressor works in partial load. In partial load conditions, a traditional on/off ground source heat pump sequentially switches ON and OFF, whereby the brine temperature decreases down to -4°C when the unit is operating. Daikin's inverter technology results in a stable outgoing brine temperature of around 0°C. This increased stability in brine temperature results in a higher and more constant evaporating temperature which leads to higher operating efficiencies.

### Less back up heater operation thanks to the boosting of the inverter compressor frequency



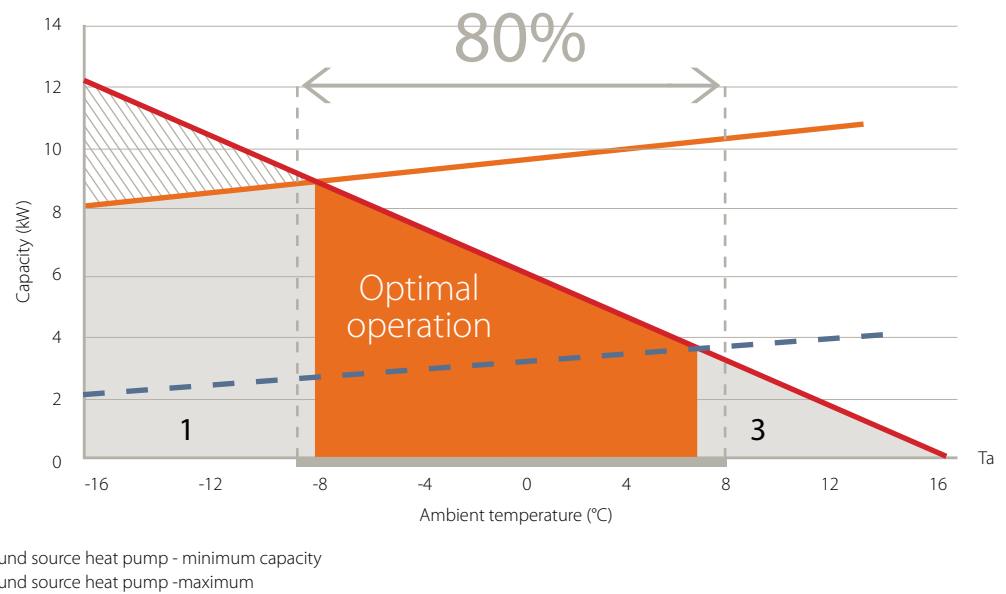
Compared to a traditional On/Off unit, the requirement for support from the back up heater is much lower for the Daikin Altherma ground source heat pump, thanks to the boosting effect of our inverter compressors, also this leads to lower running costs.

## Big partial load operation at relevant ambient conditions

### Case study

Typical Nordic climate application with standard heat load :

- Location: Sweden
- Design temperature: -17°C
- Heat load: 12kW



- 1 Full load operation with additional electric assistance (if required): the heat load is higher than the maximum heating capacity
- 2 Partial load operation: the heat load is lower than the maximum heating capacity and higher than the minimum heating capacity. This is the optimal operation zone. The compressor will reduce its operating frequency to deliver the exact required capacities with high operating efficiencies.
- 3 On/Off operation: The heat load is below the minimum heating capacity, therefore the unit will go into On/Off mode to deliver the required capacity.

In a Nordic climate, around 80% of the required heat output has to be delivered in an ambient temperature range between -9°C and 8°C, indicated by the orange zone.

To deliver a high seasonal Coefficient of Performance (COP), it is crucial to have high operating efficiencies for this ambient temperature range as the majority of the required heat has to be delivered within this temperature range. As you will see, thanks to its wide modulating range, the Daikin Altherma ground source heat pump almost completely covers the relevant ambient temperature range whilst in partial load operation, which is the optimal operational zone of the unit. This is, of course, a major benefit compared to traditional On/Off compressors.





## → 2. QUICK AND EASY INSTALLATION INCLUDING A DOMESTIC HOT WATER TANK

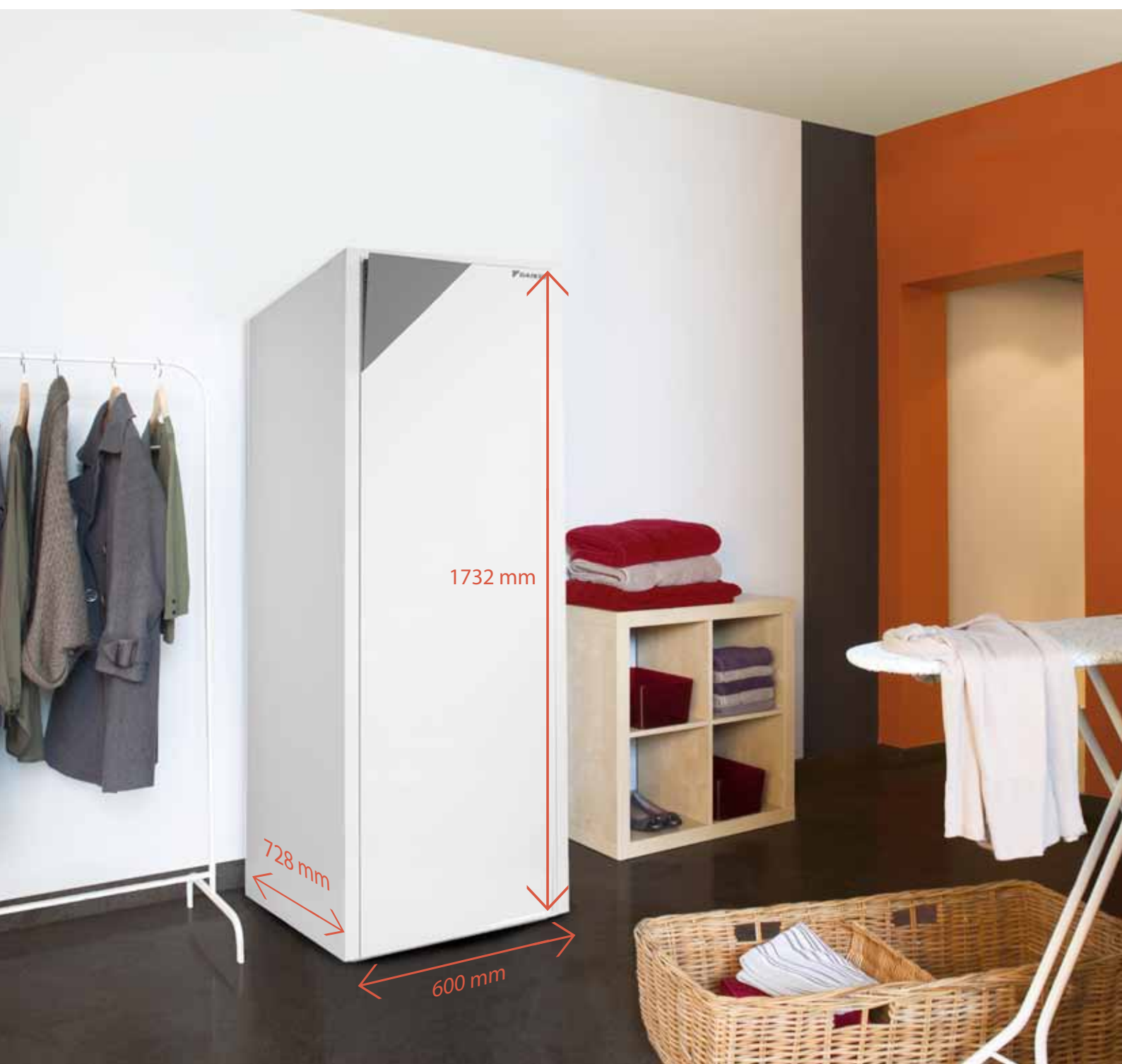
To keep things simple, the domestic hot water tank is factory-fitted, thus reducing the installation time and with the pipework connections on the top of the unit it is very easy to connect.

The overall weight of the unit is reduced to facilitate ease of shipping and installation.

### → 3. COMPACT INDOOR UNIT WITH PLEASING DESIGN

- The full integration of heat pump module and domestic hot water tank keeps the footprint very compact
- High quality design helps the unit blend in with other household units

The footprint of the integrated unit is 728mm x 600mm - about the same as a normal household appliance - and at 1800mm high, it fits neatly in any standard room. A further benefit to both the installer and the user is that only 10mm side clearance is required and all the pipework connections are on top of the heat pump unit.





## → 4. NEW USER INTERFACE

- Quick commissioning: the installer can program all the settings for an installation on a laptop computer and then simply upload them to the controller during commissioning. This not only reduces on-site time, but allows the installer to use similar setting on similar installations.
- User-friendly room thermostat functionality: the user can raise or lower water temperature as a function of the actual room temperature, resulting in a more stable room temperature and higher comfort levels.
- Energy management functionality: the controller displays both the output and input energy of the unit allowing the user to manage their energy consumption more accurately.
- Easy servicing: the controller records the time, date and nature of the last 20 Error occurrences enabling quicker diagnostics and maintenance.



# Heating, domestic hot water and cooling for residential and commercial applications

Daikin Altherma Flex Type is the **flexible solution for space heating, domestic hot water and cooling**. It provides **total climate control in places as apartments, social housing, schools, hospitals, libraries, spas, fitness centres and hotels**. A mix of intelligent solutions and advanced control technologies makes Daikin Altherma Flex Type the ultimate choice in controllable comfort for residential and commercial buildings.

The system embraces Daikin's two core ambitions: **innovation** and **reducing the environmental footprint**. Altherma Flex Type meets the EU's ambitious environmental targets for 2020. In these, the EU aims for all new buildings to consume a minimum of energy and thus to be a **"nearly Zero-Energy Building"** or nZEB.



# Daikin Altherma Flex Type

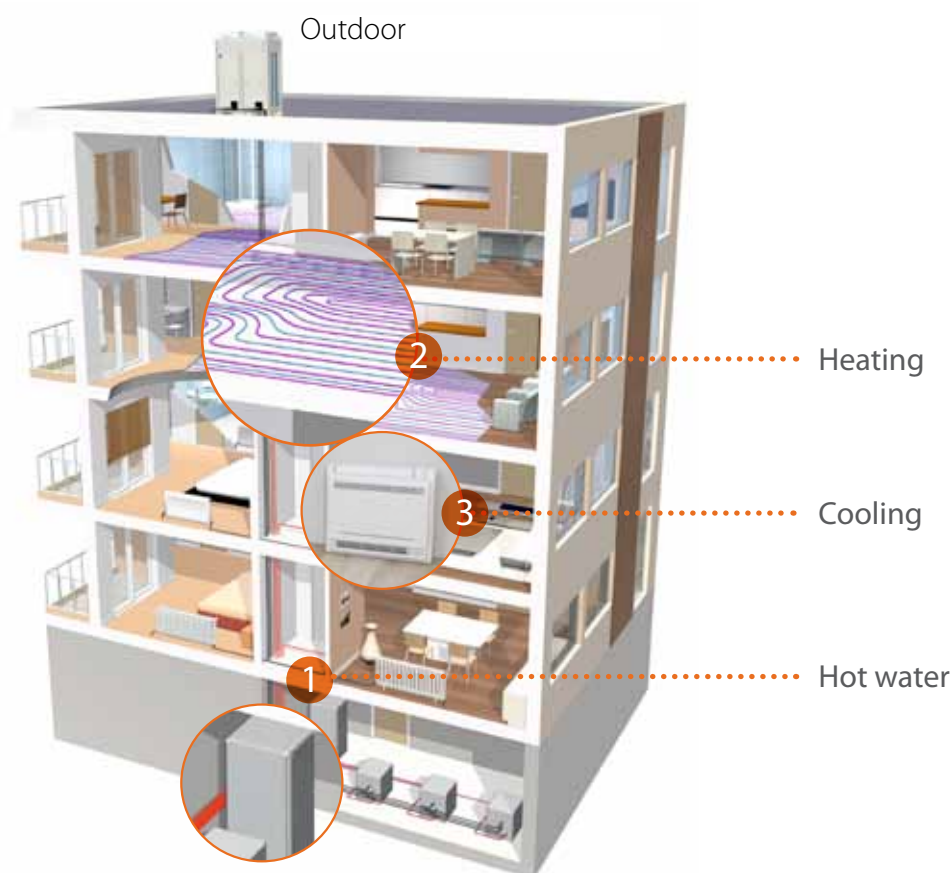
More benefits of advanced design:

- High efficiency results in low operating costs
- Individual or centralised control
- Reliable solutions for hot water and heating
- Cooling in the most efficient way
- Large hot water volume
- Green energy solutions
- Advanced control and monitoring for high efficiency and ease of operation
- Limited installation space thanks to small footprint of indoor unit and outdoor unit



# 8 benefits 4 any application

Daikin Altherma Flex Type for residential and commercial applications is a 3-in-1 system offering heating, domestic hot water and cooling all-in-one, which is highly energy efficient thanks to Daikin's advanced heat pump technology. Further more, Daikin Altherma Flex Type is a modular system. Depending from your project one or more outdoor units can be combined with up to ten indoor units per outdoor unit.



Outdoor unit

One or more outdoor units  
+ several indoor units  
>> a modular system

Indoor  
installation

Heating/Cooling

=

Indoor  
unit

+

Domestic hot  
water tank

## Apartment buildings & collective housing

Daikin Altherma Flex Type is designed with the particular challenge of apartment building and collective housing in mind.

High efficiency is ensured by the combination of technologies with **low operating costs** as a result. Next to central control, the latest integrated control technologies also allow the temperature of each residential space to be individually regulated and maintained.

## Hotels

Daikin Altherma Flex Type offers **reliable solutions** for hotel applications. The system generates efficiently **hot water** in both **heating** and cooling modes. Thanks to the advanced cascade technology the rooms are **cooled in the most efficient way**.

## Restaurants

Highly efficient production of **large hot water volume** also makes the system a perfect solution for restaurants. With its very low environmental impact the system represents a perfect **green energy solution**.

## Spas and leisure

All types of hot water applications

Daikin Altherma Flex Type easily provides heating and cooling to a large number of rooms of varying sizes, while at the same time large volumes of hot water are also needed. **Advanced control and monitoring** assure **highly efficient operation**. Furthermore only **limited installation space** is required.



## → 1. TWO DAIKIN TECHNOLOGIES COMBINED

### OUTDOOR UNIT: Daikin VRV technology

#### Modular flexibility

The Daikin Altherma makes use of Daikin's renowned VRV technology. Multiple indoor units can be connected to a single outdoor unit. A combination of Proportional Integral Derivative controlled compressors and electronic expansion valves in the outdoor unit continuously adjust the circulating refrigerant volume in response to load variations in the indoor units connected to it. This allows the indoor units to operate independently of each other, assuring total flexibility.

Each apartment retains control of its own heating, hot water and cooling.

#### Heat recovery

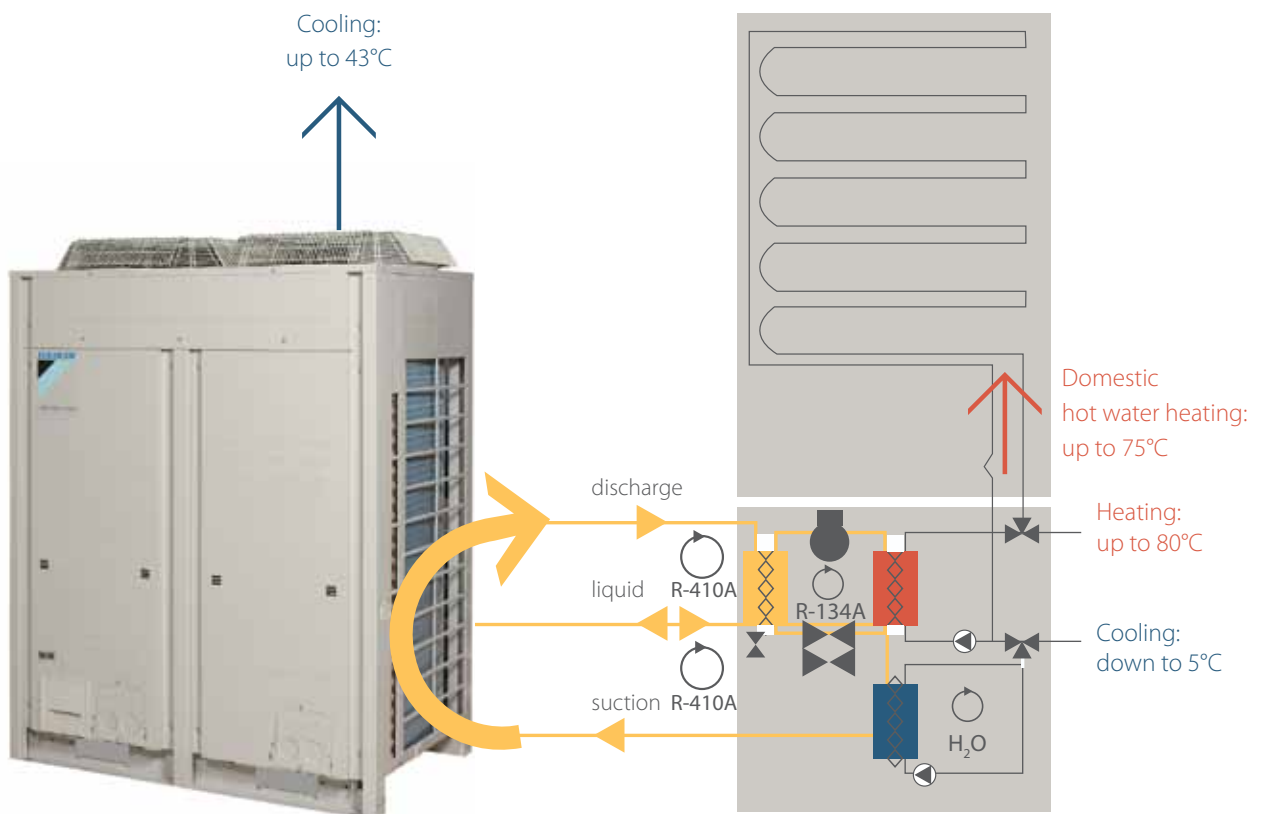
Heat absorbed while cooling one apartment can be recovered instead of being simply released into the air. This recovered heat can be used

- for domestic hot water production in the same apartment
- for space heating and domestic hot water production in other apartments

Maximum use is made of available energy, thus reducing electricity costs.

#### Inverter compressors

Daikin Altherma Flex Type owes its remarkable low energy consumption to a unique combination of highly efficient inverter-controlled Daikin compressors with a variable operating point. This allows capacity to be exactly matched to the actual heating demand of the building. The ability to optimally control the heat capacity of the outdoor unit also means maximum comfort and minimum energy consumption.



## INDOOR UNIT: Daikin Altherma cascade technology

The Daikin Cascade technology uses an outdoor unit that extracts heat from the surrounding air and transfers this to the indoor unit via a R-410A refrigerant circuit. The indoor unit then increases this heat via the R-134a refrigerant circuit and it is then used to heat the water circuit. Using the unique cascade compressor approach, water temperatures of 80° C can be achieved without additional back-up heaters.

### Space heating

Daikin Altherma Flex Type makes use of the cascade technology to improve the efficiency of the spacing heating supplied because it has a number of significant advantages over single refrigerant heat pumps:

- it provides for a wide range of water temperatures (25° - 80°C) which enables all types of heat emitters to be connected including under floor heating, convectors and radiators and it is compatible with existing radiator systems
- there is no drop in capacity with increasing water temperatures
- it delivers high capacities at low ambient temperatures right down to -20°C
- No back-up electrical heater is required

### Domestic hot water heating

The cascade technology also delivers water temperatures of 75°C that can be used to heat up the domestic hot water tank, which makes it highly efficient for the production of domestic hot water.

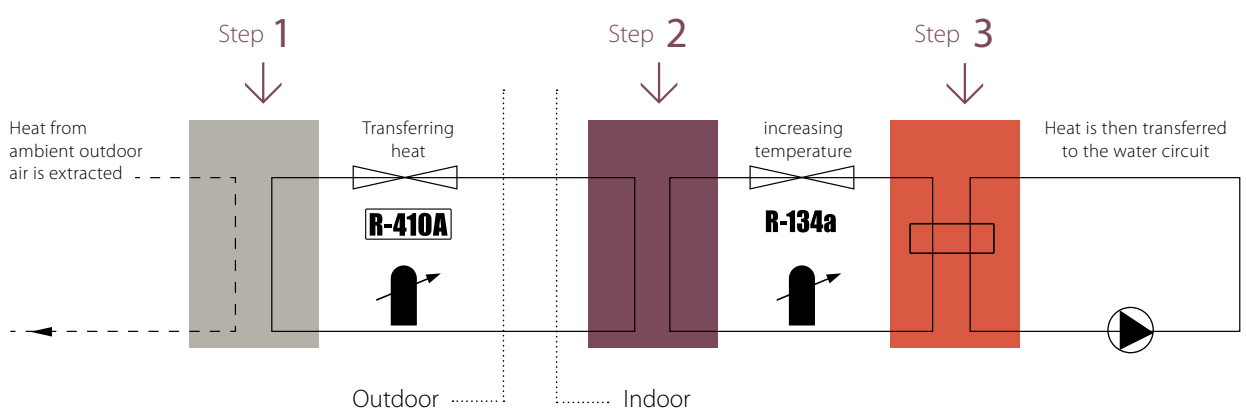
- Domestic hot water can be produced up to 75° C, without the assistance of an electric heater
- No electric heater required for Legionella disinfection
- COP of 3.0 for heating from 15° C to 60° C
- Heat-up time from 15° to 60° C in 70 minutes (200L tank)
- Equivalent hot water volume of 320L at 40° C (without reheat) for a 200L tank at a tank temperature of 60°C. Higher volumes of equivalent hot water are available with the 260l tank, or using a higher tank temperature.

### Cooling

The second refrigerant cycle R-134a can be bypassed to offer efficient cooling. The R-410A refrigerant cycle is reversed, and the cool water circuit can be used to cool the rooms.

- High cooling capacities with water temperatures down to 5°C, in combination with Daikin heat pump convector or Daikin fan coil units
- Under floor cooling is possible, with water temperatures down to 18° C
- Heat from cooling operation can be recovered to heat the domestic hot water tank

## Cascade technology







## → 2. DOMESTIC HOT WATER TANK

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.

### EKHTS: Domestic hot water tank

- Available in 200 and 260 litres
- Efficient temperature heat-up: from 10°C to 50°C in only 60 minutes\*
- Heat loss is reduced to a minimum thanks to the high quality insulation
- At necessary intervals, the indoor unit can heat up the water to 60°C to prevent the risk of bacteria growth.

\* Test done with a 16kW outdoor unit at ambient temperature of 7°C 200L tank

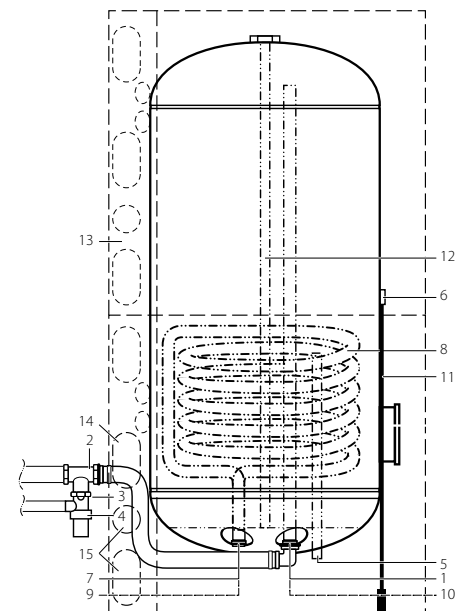
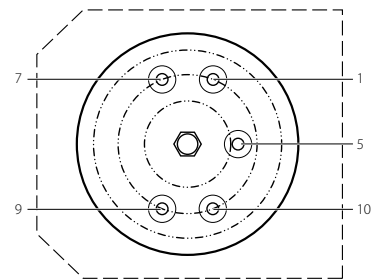


Stacked

or



Non-stacked



- |   |                             |
|---|-----------------------------|
| 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. Knockout holes          |
| 7. Flow inlet connection                | 14. Knockout holes          |



## → 3. EASY CONTROL

### System controller

The user interface controls the high temperature heating system in two 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         | › Off function   |
| › Quiet mode            | › Time scheduler |
| › Setback function      | › Domestic water |
| › Disinfection function | › heating mode   |



### Optional room thermostat

An external sensor (EKRTETS) can be placed between the under floor heating and the floor, as an option to the wireless 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, the most common of which include:

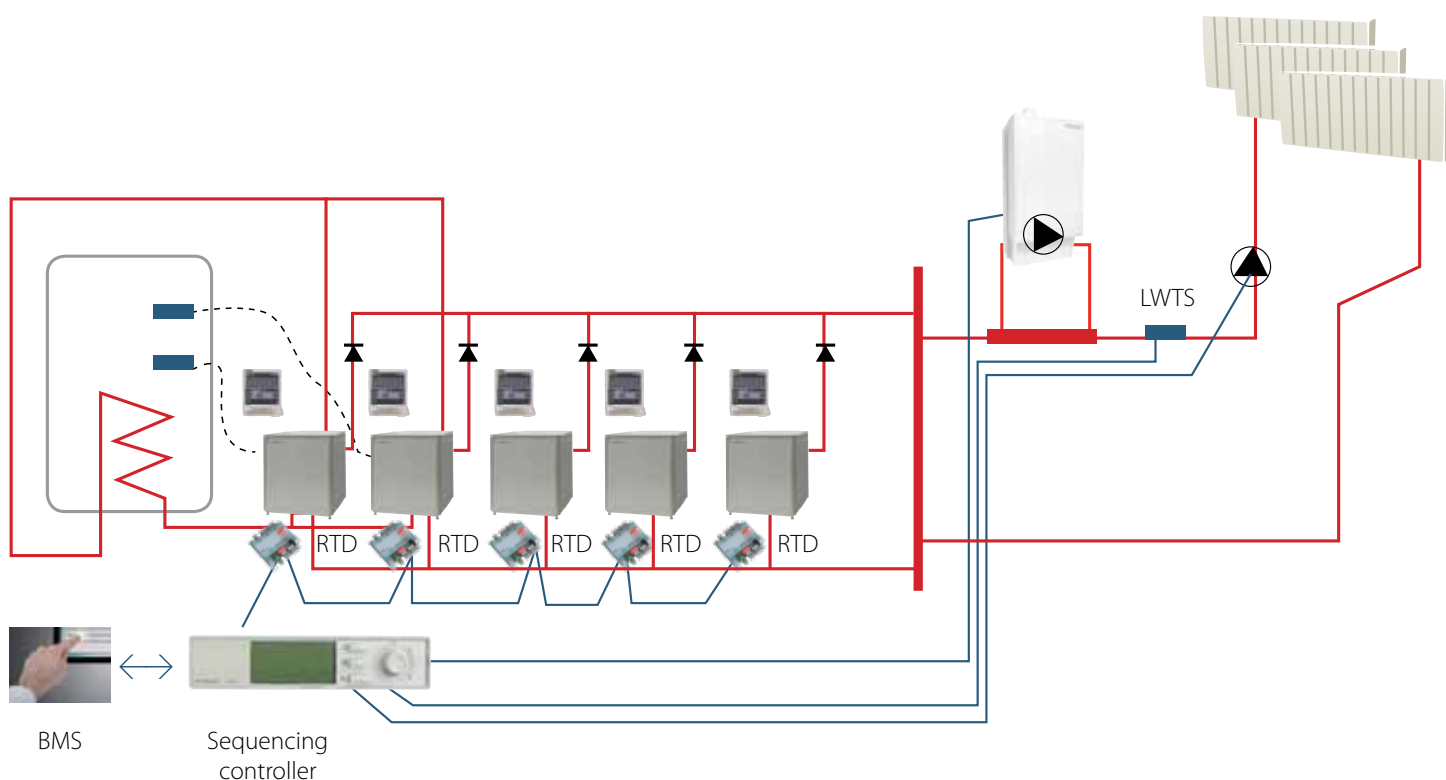
- Setting the temperature of the room based on measurements from the built-in or external sensor
- Cooling and heating mode
- Off function (with integrated frost-protection function)
- Holiday function mode
- Comfort and reduced function modes
- Time (day and month)
- Programmable week-timer with 2 user defined and 5 pre-set programmes, with up to 12 actions per day
- Keylock function
- Setting limits. The installer can change the upper and lower limits
- Floor temperature protection and protection against condensation for underfloor cooling \*

\* only in combination with EKRTETS



## Advanced control and monitoring for high efficiency and ease of operation

To further increase the efficiency, an **RTD-W** per indoor unit and a **sequencing controller** for the full heating system can be installed to monitor the exact heating demand.



### RTD-W interface

Daikin's RTD control systems allow the company's entire product portfolio to be integrated fully with other building systems. Designed for a wide range of applications, their pre-programmed functions ensure systems are highly efficient, delivering reduced energy consumption and carbon emissions, while maintaining excellent levels of comfort.

Whatever the application, Daikin's RTD controls mean all systems can be controlled centrally, helping owners, building managers, operators and home owners to reduce energy consumption (and bills), as well as lowering carbon emissions.

The RTD-W control uses dry-contacts, 0-10V signal and Modbus interface to monitor, control and integrate domestic and commercial hot water and heating systems.





## Sequencing controller

Thanks to the Modbus interface of the RTD-W, the sequencing controller (EKCC7-W) can centrally monitor the whole heating system.

**The sequencing controller transfers centralised settings and control through Modbus to the units:**

- weather dependent leaving water set point and schedule
- domestic hot water set point and schedule
- quiet mode schedule

A centralised overview of the operating conditions of all units is shown on one screen, including error history.

A main energy reducing function is the cascade operation of units. The number of operating indoor units is defined based on the difference between measured common leaving water temperature and the set point. The order of start-up of the units is determined by running hours, domestic hot water operation and grouped per outdoor unit.

In case of capacity shortage and unit alarm, the back-up heater operation is enabled by the sequencing controller.

The advanced monitoring of the heating system ensures the **building owner** a low energy bill and a clear view on the operation of the system. The **installer** has a clear view on the error history if intervention is needed.



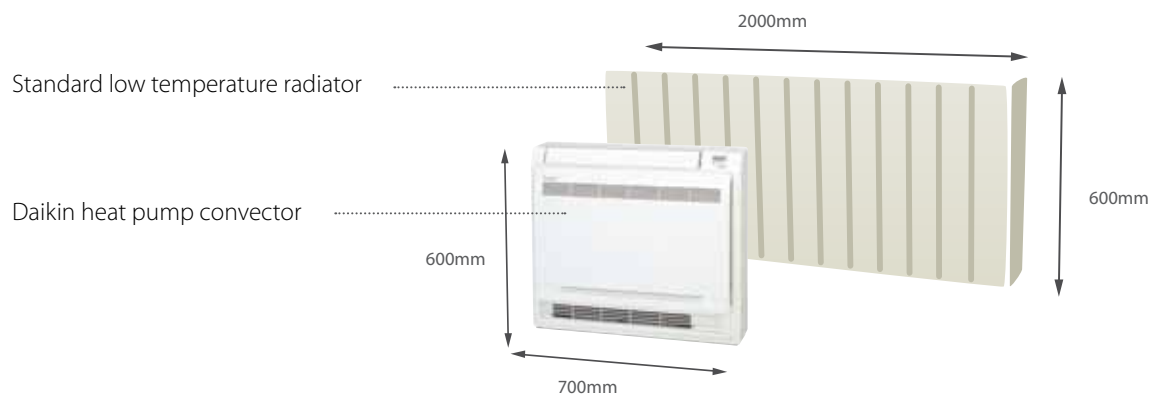


## → 4. HEAT PUMP CONVECTOR

The Daikin heat pump convector operates at typical water temperatures of 45°C, which can be efficiently produced thanks to the Daikin Altherma cascade technology.

The heat pump convector is therefore the ideal heat emitter for apartment applications, providing high comfort levels:

- **Small dimensions** compared to low-temperature radiators: width is reduced with 2/3rd



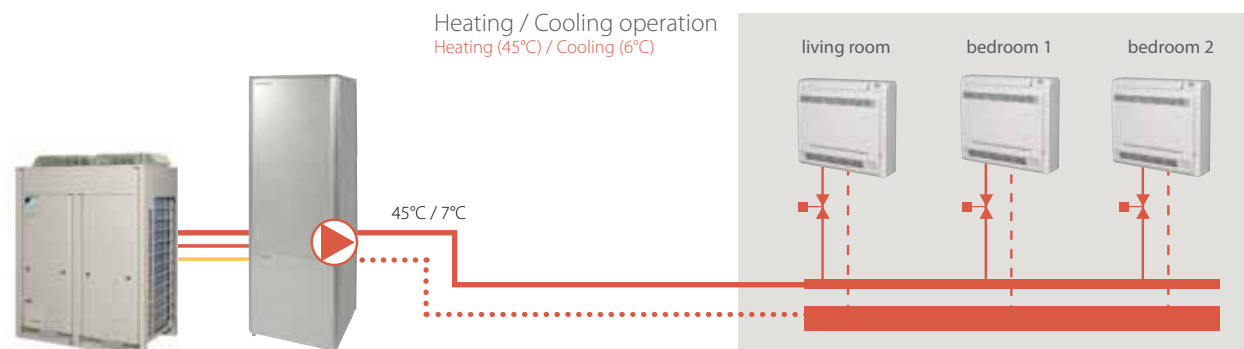
- **Low sound level** down to 19 dB(A), optimal for bedroom applications
- **High-capacity cooling** with water temperatures down to 6° C

### Control

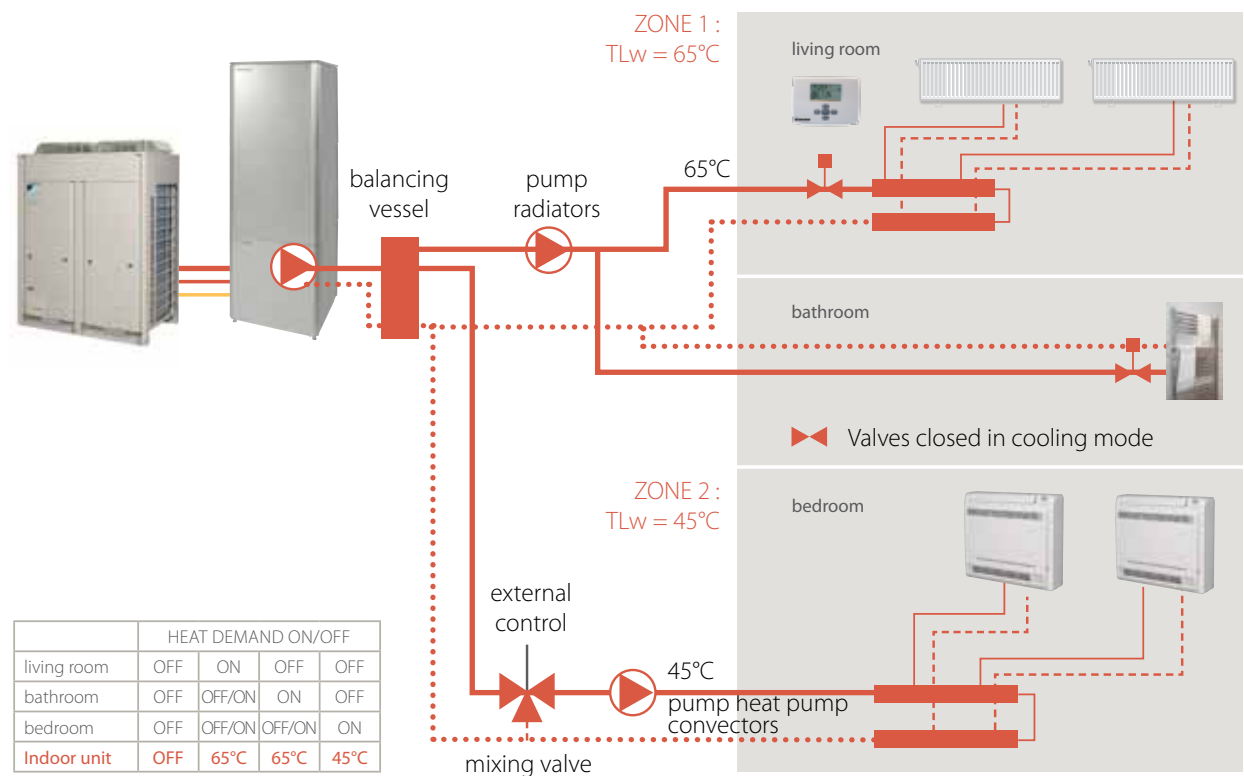
Each Daikin heat pump convector has its own control and every room can be independently heated (or cooled) as required. The remote control has a built-in weekly timer for optimum flexibility and comfort. Operation of the unit can be adapted to individual requirements.



Infrared remote control (Standard)  
ARC452A15



All types of heat emitters can be connected to Daikin Altherma for apartment buildings and collective housing, thanks to its wide water temperature range and its ability to work with multiple set points, allowing a combination of different heat emitters operating at different water temperatures. The set point of the indoor unit is a function of the actual demand of the various heat emitters, ensuring optimum efficiency at all times and under all conditions.





# At your service, with the Daikin selection

Daikin worked out three selection tools for an accurate estimation of your specific project and doing so Daikin provides a maximum of comfort, even in the early stage of choosing! / even when considering the options!

Make a quick estimation of savings on running costs and savings on CO<sub>2</sub> emissions thanks to the **Energy Savings Calculator**. The Daikin Altherma **simulation software** provides for every specific application an appropriate heat pump selection based on the specific house and location details. And for new houses or renovations the Daikin Altherma **selection and simulation software** allows quick and easy identification of the optimal mix of components.



# tools



## → 1. ENERGY SAVINGS CALCULATOR

Daikin provides a web-based tool to give a quick estimation of savings on running costs and savings on CO<sub>2</sub> emissions. Based on a few inputs from the customer (location, house type, floor area, number of people), a comparison is made between the Daikin Altherma heat pump system and traditional heating systems. This comparison includes the space heating and domestic hot water heating. This is available for both new builds and refurbishment applications. <http://ecocalc.daikin.eu>



## → 2. SIMULATION SOFTWARE

The Daikin Altherma simulation software provides for every specific application an appropriate heat pump selection, taking into account the needs of the building and specific climate data. An installer can provide the following data:

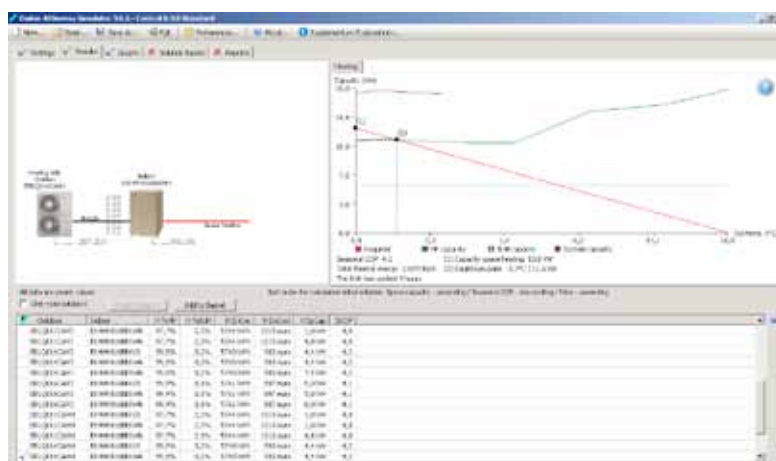
- house application: heat/cool load, water temperatures, power supply
- climate conditions: location, design temperature
- domestic hot water requirements: tank volume, material, solar connection
- preferences: "heating off" temperature, night setback function

Based on the specific house and location details, the software provides a full dimensioning assuring a correct material selection.

As well as a full material selection, the software provides detailed information for the installer and the end-user, on the expected outcome of the specified Daikin Altherma unit for its specific application and climate:

- seasonal efficiency of the heat pump system
- amount of back-up heater operation
- energy consumption and energy cost per month
- savings on running costs compared to traditional heating systems

All this information will be summarised in a detailed report.



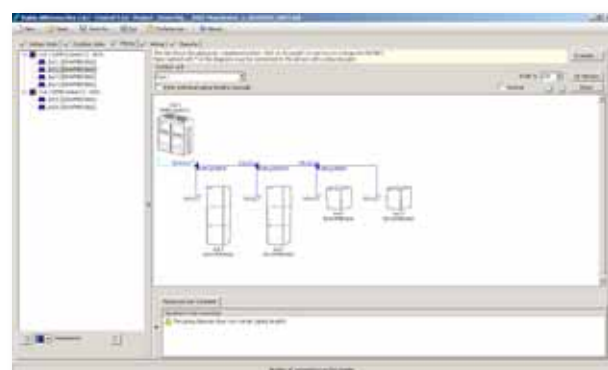
Check your local Daikin website for availability of this simulation software.

## → 3. SELECTION AND DESIGN SOFTWARE FOR DAIKIN ALTHERMA FLEX TYPE

The Daikin Altherma selection and simulation software for new houses or renovations allows quick and easy identification of the optimal mix of components. It automatically selects indoor and outdoor units based on the required heat loads per housing unit and calculates the required refrigerant piping dimensions.

The software also features:

- automatic or manual selection of indoor units
- automatic selection of outdoor units
- calculation of refrigerant piping diameters
- automatic selection of refnet headers and joints
- creation of piping and wiring diagrams with the possibility to export them as DXF file
- creation of extensive selection report



# Technical specifications

## ➔ 1. DAIKIN ALTHERMA LOW TEMPERATURE

### HEATING ONLY



INVERTER

INDOOR UNIT				EHVH04S18C3V	EHVH08S18C3V	EHVH08S26C9W	EHVH16S18C3V	EHVH16S26C9W	
Casing	Colour			White			White		
	Material			Precoated sheet metal			Precoated sheet metal		
Dimensions	Unit	HeightxWidthxDepth		mm	1,732x600x728			1,732x600x728	
Weight	Unit			kg	115	116	126	120	129
Operation range	Heating	Ambient	Min.~Max.	°C	-25~25			-25~25	-25~35
		Water side	Min.~Max.	°C	15~55			15~55	
	Domestic hot water	Ambient	Min.~Max.	°CDB	-25~35			-20~35	
		Water side	Min.~Max.	°C	25~60			25~60	
Sound power level	Nom.			dBA	42			47	
Sound pressure level	Nom.			dBA	28			33	

OUTDOOR UNIT				ERLQ004CV3	ERLQ006CV3	ERLQ008CV3	ERLQ011CV3/CW1	ERLQ014CV3/CW1	ERLQ016CV3/CW1
Heating capacity	Min.		kW	1.80 <sup>1</sup> / 1.80 <sup>2</sup>	1.80 <sup>1</sup> / 1.80 <sup>2</sup>	1.80 <sup>1</sup> / 1.80 <sup>2</sup>	-		
	Nom.		kW	4.40 <sup>1</sup> / 4.03 <sup>2</sup>	6.00 <sup>1</sup> / 5.67 <sup>2</sup>	7.40 <sup>1</sup> / 6.89 <sup>2</sup>	11.38	14.55	16.10
	Max.		kW	5.12 <sup>1</sup> / 4.90 <sup>2</sup>	8.35 <sup>1</sup> / 7.95 <sup>2</sup>	10.02 <sup>1</sup> / 9.35 <sup>2</sup>	-		
Power input	Heating	Nom.	kW	0.87 <sup>1</sup> / 1.13 <sup>2</sup>	1.27 <sup>1</sup> / 1.59 <sup>2</sup>	1.66 <sup>1</sup> / 2.01 <sup>2</sup>	2.64	3.43	3.83
COP				5.04 <sup>1</sup> / 3.58 <sup>2</sup>	4.74 <sup>1</sup> / 3.56 <sup>2</sup>	4.45 <sup>1</sup> / 3.42 <sup>2</sup>	4.31	4.24	4.20
Dimensions	Unit	HeightxWidthxDepth		mm			735x832x307		
Weight	Unit			kg			1,345x900x320		
Operation range	Heating	Min.~Max.	°CWB			-25~-35			
	Domestic hot water	Min.~Max.	°CDB			-25~-35			
Refrigerant	Type			R-410A			R-410A		
	Charge			kg			3.4		
Sound power level	Heating	Nom.	dBA	61		62	64		66
Sound pressure level	Heating	Nom.	dBA	48		49	51		52
Power supply	Name/Phase/Frequency/Voltage			H/V			V3/1~/50/230 // W1/3N~/50/400		
Current	Recommended fuses			A			40/20		

(1) cooling Ta 35°C - LWE 18°C (DT = 5°C); heating Ta DB/WB 7°C/6°C - LWC 35°C (DT = 5°C)

(2) cooling Ta 35°C - LWE 7°C (DT = 5°C); heating Ta DB/WB 7°C/6°C - LWC 45°C (DT = 5°C)

### HEATING ONLY



INVERTER

INDOOR UNIT				EHVH16S18C3V	EHVH16S26C9W	EHVH16S18C3V	EHVH16S26C9W	
Casing	Colour			White		White		
	Material			Precoated sheet metal		Precoated sheet metal		
Dimensions	Unit	HeightxWidthxDepth		mm	1,732x600x728		1,732x600x728	
Weight	Unit			kg	120	129	120	129
Operation range	Heating	Ambient	Min.~Max.	°C	-25~35		-25~35	
		Water side	Min.~Max.	°C	15~55		15~55	
	Domestic hot water	Ambient	Min.~Max.	°CDB	-20~35		-20~35	
		Water side	Min.~Max.	°C	25~60		25~60	
Sound power level	Nom.			dBA	47		47	
Sound pressure level	Nom.			dBA	33		33	

OUTDOOR UNIT				ERHQ011BV3	ERHQ014BV3	ERHQ016BV3	ERHQ011BW1	ERHQ014BW1	ERHQ016BW1
Heating capacity	Nom.		kW	11.2	14.0	16.0	11.32	14.50	16.05
Power input	Heating	Nom.	kW	2.55	3.26	3.92	2.63	3.42	3.82
COP				4.39	4.29	4.08	4.30	4.24	4.20
Dimensions	Unit	HeightxWidthxDepth	mm	1,170x900x320			1,345x900x320		
Weight	Unit		kg	103			108		
Operation range	Heating	Min.~Max.	°CWB	-20~-35			-20~-35		
	Domestic hot water	Min.~Max.	°CDB	-20~-43			-20~-43		
Refrigerant	Type			R-410A			R-410A		
	Charge			3.7			2.95		
Sound power level	Heating	Nom.	dBA				64	66	
Sound pressure level	Heating	Nom.	dBA	49	51	53	51	52	
Power supply	Name/Phase/Frequency/Voltage			V3/1~/50/230			W1/3N~/50/400		
Current	Recommended fuses			32			20		



## HEATING &amp; COOLING



INDOOR UNIT				EHVX04S18C3V	EHVX08S18C3V		EHVX08S26C9W	EHVX16S18C3V	EHVX16S26C9W	
Casing	Colour			White				White		
	Material			Precoated sheet metal				Precoated sheet metal		
Dimensions	Unit	HeightxWidthxDepth		mm	1,732x600x728				1,732x600x728	
Weight	Unit	kg			115	117	126	121	129	
Operation range	Heating	Ambient	Min.~Max.	°C	-25~25				-25~25	
		Water side	Min.~Max.	°C	15~55				15~55	
	Cooling	Ambient	Min.~Max.	°CDB	10~43				10~46	
		Water side	Min.~Max.	°C	5~22				5~22	
	Domestic hot water	Ambient	Min.~Max.	°CDB	-25~35				-20~35	
		Water side	Min.~Max.	°C	25~60				25~60	
Sound power level	Nom.	dBA			42				47	
Sound pressure level	Nom.	dBA			28				33	

OUTDOOR UNIT				ERLQ004CV3	ERLQ006CV3	ERLQ008CV3	ERLQ011CV3/CW1	ERLQ014CV3/CW1	ERLQ016CV3/CW1
Heating capacity	Min.		kW	1.80 <sup>1</sup> / 1.80 <sup>2</sup>	1.80 <sup>1</sup> / 1.80 <sup>2</sup>	1.80 <sup>1</sup> / 1.80 <sup>2</sup>	-		
	Nom.		kW	4.40 <sup>1</sup> / 4.03 <sup>2</sup>	6.00 <sup>1</sup> / 5.67 <sup>2</sup>	7.40 <sup>1</sup> / 6.89 <sup>2w</sup>	11.38	14.55	16.10
	Max.		kW	5.12 <sup>1</sup> / 4.90 <sup>2</sup>	8.35 <sup>1</sup> / 7.95 <sup>2</sup>	10.02 <sup>1</sup> / 9.53 <sup>2</sup>	-		
Cooling capacity	Min.		kW	2.00 <sup>1</sup> / 2.00 <sup>2</sup>	2.50 <sup>1</sup> / 2.50 <sup>2</sup>	2.50 <sup>1</sup> / 2.50 <sup>2</sup>	-		
	Nom.		kW	5.00 <sup>1</sup> / 4.17 <sup>2</sup>	6.76 <sup>1</sup> / 4.84 <sup>2</sup>	6.86 <sup>1</sup> / 5.36 <sup>2</sup>	11.72	12.55	13.12
Power input	Heating	Nom.	kW	0.87 <sup>1</sup> / 1.13 <sup>2</sup>	1.27 <sup>1</sup> / 1.59 <sup>2</sup>	1.66 <sup>1</sup> / 2.01 <sup>2</sup>	2.64	3.43	3.83
	Cooling	Nom.	kW	1.48 <sup>1</sup> / 1.80 <sup>2</sup>	1.96 <sup>1</sup> / 2.07 <sup>2</sup>	2.01 <sup>1</sup> / 2.34 <sup>2</sup>	4.31	5.09	5.74
COP				5.04 <sup>1</sup> / 3.58 <sup>2</sup>	4.74 <sup>1</sup> / 3.56 <sup>2</sup>	4.45 <sup>1</sup> / 3.42 <sup>2</sup>	4.31	4.24	4.20
EER				3.37 <sup>1</sup> / 2.32 <sup>2</sup>	3.45 <sup>1</sup> / 2.34 <sup>2</sup>	3.42 <sup>1</sup> / 2.29 <sup>2</sup>	2.72	2.47	2.29
Dimensions	Unit	HeightxWidthxDepth	mm	735x832x307			1,345x900x320		
Weight	Unit		kg	54	56		113/114		
Operation range	Heating	Min.~Max.	°CWB	-25~25			-25~35		
	Cooling	Min.~Max.	°CDB	10~43			10~46		
	Domestic hot water	Min.~Max.	°CDB	-25~35			-20~35		
Refrigerant	Type			R-410A			R-410A		
	Charge		kg	1.45	1.60		3.4		
Sound power level	Heating	Nom.	dBA	61	63	62	64	66	
	Cooling	Nom.	dBA				64	66	69
Sound pressure level	Heating	Nom.	dBA	48	49	49	51	52	
	Cooling	Nom.	dBA	48	49	50	50	52	54
Power supply	Name/Phase/Frequency/Voltage			Hz/V			V3/1~/50/230 // W1/3N~/50/400		
Current	Recommended fuses			A			40/20		

(1) cooling Ta 35°C - LWE 18°C (DT = 5°C); heating Ta DB/WB 7°C/6°C - LWC 35°C (DT = 5°C)

(2) cooling Ta 35°C - LWE 7°C (DT = 5°C); heating Ta DB/WB 7°C/6°C - LWC 45°C (DT = 5°C)

## HEATING &amp; COOLING



INDOOR UNIT					EHVX16S18C3V	EHVX16S26C9W	EHVX16S18C3V	EHVX16S26C9W	
Casing	Colour				White		White		
	Material				Precoated sheet metal		Precoated sheet metal		
Dimensions	Unit	HeightxWidthxDepth		mm	1,732x600x728		1,732x600x728		
Weight	Unit				kg	121	129	121	129
Operation range	Heating	Ambient	Min.~Max.	°C	-25~35		-25~35		
		Water side	Min.~Max.	°C	15~55		15~55		
	Cooling	Ambient	Min.~Max.	°CDB	10~46		10~46		
		Water side	Min.~Max.	°C	5~22		5~22		
	Domestic hot water	Ambient	Min.~Max.	°CDB	-20~35		-20~35		
		Water side	Min.~Max.	°C	25~60		25~60		
Sound power level	Nom.			dBA	47		47		
Sound pressure level	Nom.			dBA	33		33		

OUTDOOR UNIT				ERHQ011BV3	ERHQ014BV3	ERHQ016BV3	ERHQ011BW1	ERHQ014BW1	ERHQ016BW1
Heating capacity	Nom.		kW	11.2	14.0	16.0	11.32	14.50	16.05
Cooling capacity	Nom.		kW	10.0	12.5	13.1	11.72	12.55	13.12
Power input	Heating	Nom.	kW	2.55	3.26	3.92	2.63	3.42	3.82
	Cooling	Nom.	kW	3.69	5.38	6.04	4.31	5.09	5.74
COP				4.39	4.29	4.08	4.30	4.24	4.20
EER				2.71	2.32	2.17	2.72	2.47	2.29
Dimensions	Unit	HeightxWidthxDepth	mm	1,170x900x320			1,345x900x320		
Weight	Unit		kg	103			108		
Operation range	Heating	Min.~Max.	°CWB	-20~35			-20~35		
	Cooling	Min.~Max.	°CDB	-			10~46		
	Domestic hot water	Min.~Max.	°CDB	-20~43			-20~43		
Refrigerant	Type			R-410A			R-410A		
	Charge		kg	3.7			2.95		
Sound power level	Heating	Nom.	dBA	-			64		66
	Cooling	Nom.	dBA	-			64	66	69
Sound pressure level	Heating	Nom.	dBA	49	51	53	51		52
	Cooling	Nom.	dBA	-			50	52	54
Power supply	Name/Phase/Frequency/Voltage		Hz/V	V3/1~/50/230			W1/3N~/50/400		
Current	Recommended fuses		A	32			20		





## HEATING ONLY



INDOOR UNIT				EHBH04C3V	EHBH08C3V	EHBH08C9W	EHBH16C3V	EHBH16C9W
Casing	Colour			White				White
	Material			Precoated sheet metal				Precoated sheet metal
Dimensions	Unit	HeightxWidthxDepth	mm	890x480x344				890x480x344
Weight	Unit		kg	44	46	48	45	48
Operation range	Heating	Ambient	Min.~Max. °C	-25~25				-25~35
		Water side	Min.~Max. °C	15~55				15~55
	Domestic hot water	Ambient	Min.~Max. °CDB	-25~35				-20~35
		Water side	Min.~Max. °C	25~80				25~80
Sound power level	Nom.			40				47
Sound pressure level	Nom.			26				33



**INVERTER**

OUTDOOR UNIT				ERLQ004CV3	ERLQ006CV3	ERLQ008CV3	ERLQ011CV3/CW1	ERLQ014CV3/CW1	ERLQ016CV3/CW1
Heating capacity	Min.		kW	1.80 <sup>1</sup> / 1.80 <sup>2</sup>	1.80 <sup>1</sup> / 1.80 <sup>2</sup>	1.80 <sup>1</sup> / 1.80 <sup>2</sup>	-		
	Nom.		kW	4.40 <sup>1</sup> / 4.03 <sup>2</sup>	6.00 <sup>1</sup> / 5.67 <sup>2</sup>	7.40 <sup>1</sup> / 6.89 <sup>2</sup>	11.38	14.55	16.10
	Max.		kW	5.12 <sup>1</sup> / 4.90 <sup>2</sup>	8.35 <sup>1</sup> / 7.95 <sup>2</sup>	10.02 <sup>1</sup> / 9.35 <sup>2</sup>	-		
Power input	Heating	Nom.	kW	0.87 <sup>1</sup> / 1.13 <sup>2</sup>	1.27 <sup>1</sup> / 1.59 <sup>2</sup>	1.66 <sup>1</sup> / 2.01 <sup>2</sup>	2.64	3.43	3.83
COP				5.04 <sup>1</sup> / 3.58 <sup>2</sup>	4.74 <sup>1</sup> / 3.56 <sup>2</sup>	4.45 <sup>1</sup> / 3.42 <sup>2</sup>	4.31	4.24	4.20
Dimensions	Unit	HeightxWidthxDepth		mm		735x832x307		1,345x900x320	
Weight	Unit			kg	54	56	113 / 114		
Operation range	Heating	Min.~Max.		°CWB		-25~25		-25~35	
	Domestic hot water	Min.~Max.		°CDB		-25~35		-20~35	
Refrigerant	Type					R-410A		R-410A	
	Charge			kg	1.45	1.60	3.4		
Sound power level	Heating	Nom.	dBA	61		62	64		66
Sound pressure level	Heating	Nom.	dBA	48		49	51		52
Power supply	Name/Phase/Frequency/Voltage			Hz/V		V3/1~/50/230		V3/1~/50/230// W1/3N~/50/400	
Current	Recommended fuses			A		20		40/20	

(1) cooling Ta 35°C - LWE 18°C (DT = 5°C); heating Ta DB/WB 7°C/6°C - LWC 35°C (DT = 5°C)

(2) cooling Ta 35°C - LWE 7°C (DT = 5°C); heating Ta DB/WB 7°C/6°C - LWC 45°C (DT = 5°C)

## HEATING ONLY



INDOOR UNIT				EHBH16C3V	EHBH16C9W	EHBH16C3V	EHBH16C9W
Casing	Colour			White		White	
	Material			Precoated sheet metal		Precoated sheet metal	
Dimensions	Unit	HeightxWidthxDepth	mm	890x480x344		890x480x344	
Weight	Unit		kg	45	48	45	48
Operation range	Heating	Ambient	Min.~Max. °C	-25~35		-25~35	
		Water side	Min.~Max. °C	15~55		15~55	
	Domestic hot water	Ambient	Min.~Max. °CDB	-20~35		-20~35	
		Water side	Min.~Max. °C	25~80		25~80	
Sound power level	Nom.			47		47	
Sound pressure level	Nom.			33		33	



**INVERTER**

OUTDOOR UNIT				ERHQ011BV3	ERHQ014BV3	ERHQ016BV3	ERHQ011BW1	ERHQ014BW1	ERHQ016BW1
Heating capacity	Nom.		kW	11.2	14.0	16.0	11.32	14.50	16.05
Power input	Heating	Nom.	kW	2.55	3.26	3.92	2.63	3.42	3.82
COP				4.39	4.29	4.08	4.30	4.24	4.20
Dimensions	Unit	HeightxWidthxDepth	mm	1,170x900x320			1,345x900x320		
Weight	Unit		kg	103			108		
Operation range	Heating	Min.~Max.	°CWB	-20~35			-20~35		
	Domestic hot water	Min.~Max.	°CDB	-20~43			-20~43		
Refrigerant	Type			R-410A			R-410A		
	Charge		kg	3.7			2.95		
Sound power level	Heating	Nom.	dBA	-			64		66
Sound pressure level	Heating	Nom.	dBA	49	51	53	51		52
Power supply	Name/Phase/Frequency/Voltage			V3/1~/50/230			W1/3N~/50/400		
Current	Recommended fuses			32			20		

## HEATING &amp; COOLING



INDOOR UNIT				EHBX04C3V	EHBX08C3V	EHBX08C9W	EHBX16C3V	EHBX16C9W
Casing	Colour			White			White	
	Material			Precoated sheet metal			Precoated sheet metal	
Dimensions	Unit	HeightxWidthxDepth		mm	890x480x344		890x480x344	
Weight	Unit			kg	44	46	48	45
Operation range	Heating	Ambient	Min.~Max.	°C	-25~25		-25~35	
		Water side	Min.~Max.	°C	15~55		15~55	
	Cooling	Ambient	Min.~Max.	°CDB	10~43		10~46	
		Water side	Min.~Max.	°C	5~22		5~22	
	Domestic hot water	Ambient	Min.~Max.	°CDB	-25~35		-20~35	
		Water side	Min.~Max.	°C	25~80		25~80	
Sound power level	Nom.			dBA	40		47	
Sound pressure level	Nom.			dBA	26		33	

OUTDOOR UNIT				ERLQ004CV3	ERLQ006CV3	ERLQ008CV3	ERLQ011CV3/CW1	ERLQ014CV3/CW1	ERLQ016CV3/CW1
Heating capacity	Min.		kW	1.80 <sup>1</sup> / 1.80 <sup>2</sup>	1.80 <sup>1</sup> / 1.80 <sup>2</sup>	1.80 <sup>1</sup> / 1.80 <sup>2</sup>	-		
	Nom.		kW	4.40 <sup>1</sup> / 4.03 <sup>2</sup>	6.00 <sup>1</sup> / 5.67 <sup>2</sup>	7.40 <sup>1</sup> / 6.89 <sup>2</sup>	11.38	14.55	16.10
	Max.		kW	5.12 <sup>1</sup> / 4.90 <sup>2</sup>	8.35 <sup>1</sup> / 7.95 <sup>2</sup>	10.02 <sup>1</sup> / 9.53 <sup>2</sup>	-		
Cooling capacity	Min.		kW	2.00 <sup>1</sup> / 2.00 <sup>2</sup>	2.50 <sup>1</sup> / 2.50 <sup>2</sup>	2.50 <sup>1</sup> / 2.50 <sup>2</sup>	-		
	Nom.		kW	5.00 <sup>1</sup> / 4.17 <sup>2</sup>	6.76 <sup>1</sup> / 4.84 <sup>2</sup>	6.86 <sup>1</sup> / 5.3 <sup>2</sup>	11.72	12.55	13.12
Power input	Heating	Nom.	kW	0.87 <sup>1</sup> / 1.13 <sup>2</sup>	1.27 <sup>1</sup> / 1.59 <sup>2</sup>	1.66 <sup>1</sup> / 2.01 <sup>2</sup>	2.64	3.43	3.83
	Cooling	Nom.	kW	1.48 <sup>1</sup> / 1.80 <sup>2</sup>	1.96 <sup>1</sup> / 2.07 <sup>2</sup>	2.01 <sup>1</sup> / 2.34 <sup>2</sup>	4.31	5.09	5.74
COP				5.04 <sup>1</sup> / 3.58 <sup>2</sup>	4.74 <sup>1</sup> / 3.56 <sup>2</sup>	4.45 <sup>1</sup> / 3.42 <sup>2</sup>	4.31	4.24	4.20
EER				3.37 <sup>1</sup> / 2.32 <sup>2</sup>	3.45 <sup>1</sup> / 2.34 <sup>2</sup>	3.42 <sup>1</sup> / 2.29 <sup>2</sup>	2.72	2.47	2.29
Dimensions	Unit	HeightxWidthxDepth	mm	735x832x307			1,345x900x320		
Weight	Unit		kg	54	56		113 / 114		
Operation range	Heating	Min.~Max.	°CWB	-25~25			-25~35		
	Cooling	Min.~Max.	°CDB	10~43			10~46		
	Domestic hot water	Min.~Max.	°CDB	-25~35			-20~35		
Refrigerant	Type			R-410A			R-410A		
	Charge		kg	1.45	1.60		3.4		
Sound power level	Heating	Nom.	dBA	61		62	64	66	
	Cooling	Nom.	dBA	63			64	66	69
Sound pressure level	Heating	Nom.	dBA	48		49	51	52	
	Cooling	Nom.	dBA	48	50		50	52	54
Power supply	Name/Phase/Frequency/Voltage			Hz/V		V3/1~/50/230		V3/1~/50/230 // W1/3N~/50/400	
Current	Recommended fuses			A		20		40/20	

(1) cooling Ta 35°C - LWE 18°C (DT = 5°C); heating Ta DB/WB 7°C/6°C - LWC 35°C (DT = 5°C)

(2) cooling Ta 35°C - LWE 7°C (DT = 5°C); heating Ta DB/WB 7°C/6°C - LWC 45°C (DT = 5°C)

## HEATING &amp; COOLING



INDOOR UNIT				EHBX16C3V	EHBX16C9W	EHBX16C3V	EHBX16C9W
Casing	Colour			White		White	
	Material			Precoated sheet metal		Precoated sheet metal	
Dimensions	Unit	HeightxWidthxDepth		mm	890x480x344		890x480x344
Weight	Unit			kg	45	48	45
Operation range	Heating	Ambient	Min.~Max.	°C	-25~35		-25~35
		Water side	Min.~Max.	°C	15~55		15~55
	Cooling	Ambient	Min.~Max.	°CDB	10~46		10~46
		Water side	Min.~Max.	°C	5~22		5~22
	Domestic hot water	Ambient	Min.~Max.	°CDB	-20~35		-20~35
		Water side	Min.~Max.	°C	25~80		25~80
Sound power level	Nom.			dBA	47		47
Sound pressure level	Nom.			dBA	33		33

OUTDOOR UNIT				ERHQ011BV3	ERHQ014BV3	ERHQ016BV3	ERHQ011BW1	ERHQ014BW1	ERHQ016BW1
Heating capacity	Nom.		kW	11.2	14.0	16.0	11.32	14.50	16.05
Cooling capacity	Nom.		kW	10.0	12.5	13.1	11.72	12.55	13.12
Power input	Heating	Nom.	kW	2.55	3.26	3.92	2.63	3.42	3.82
	Cooling	Nom.	kW	3.69	5.38	6.04	4.31	5.09	5.74
COP				4.39	4.29	4.08	4.30	4.24	4.20
EER				2.71	2.32	2.17	2.72	2.47	2.29
Dimensions	Unit	HeightxWidthxDepth	mm	1,170x900x320			1,345x900x320		
Weight	Unit		kg	103			108		
Operation range	Heating	Min.~Max.	°CWB	-20~35			-20~35		
	Cooling	Min.~Max.	°CDB	-			10~46		
	Domestic hot water	Min.~Max.	°CDB	-20~43			-20~43		
Refrigerant	Type			R-410A			R-410A		
	Charge		kg	3.7			2.95		
Sound power level	Heating	Nom.	dBA	-			64		66
	Cooling	Nom.	dBA	-				66	69
Sound pressure level	Heating	Nom.	dBA	49	51	53	51		52
	Cooling	Nom.	dBA	-			50	52	54
Power supply	Name/Phase/Frequency/Voltage		Hz/V	V3/1~/50/230			W1/3N~/50/400		
Current	Recommended fuses		A	32			20		



INVERTER



**INVERTER**

## HEATING & COOLING

## MONOBLOC SYSTEM

OUTDOOR UNIT				EBHQ006BBV3	EBHQ008BBV3
Heating capacity	Nom.		kW	6.00 <sup>2</sup> / 5.58 <sup>4</sup>	8.85 <sup>2</sup> / 8.15 <sup>4</sup>
Cooling capacity	Nom.		kW	7.00 <sup>1</sup> / 5.12 <sup>3</sup>	8.37 <sup>1</sup> / 6.08 <sup>3</sup>
Power input	Cooling	Nom.	kW	2.20 <sup>1</sup> / 2.16 <sup>3</sup>	2.97 <sup>1</sup> / 2.75 <sup>3</sup>
	Heating	Nom.	kW	1.41 <sup>2</sup> / 1.79 <sup>4</sup>	2.21 <sup>2</sup> / 2.72 <sup>4</sup>
COP				4.26 <sup>2</sup> / 3.11 <sup>4</sup>	4.00 <sup>2</sup> / 3.00 <sup>4</sup>
EER				3.18 <sup>1</sup> / 2.37 <sup>3</sup>	2.82 <sup>1</sup> / 2.21 <sup>3</sup>
Dimensions	Unit	Height	mm	805	
		Width	mm	1,190	
		Depth	mm	360	
Weight	Unit		kg	95	
Operation range	Heating	Ambient	Min.~Max. °CWB	-15~-25	
		Water side	Min.~Max. °C	15 <sup>2</sup> ~50 <sup>7</sup>	
	Cooling	Ambient	Min.~Max. °CDB	10~43	
		Water side	Min.~Max. °C	5~22	
	Domestic hot water	Ambient	Min.~Max. °CDB	-15~35	
		Water side	Min.~Max. °C	25~80	
Refrigerant	Type				R-410A
	Charge		kg	1.7	
Sound power level	Heating	Nom.	dBA	61	62
	Cooling	Nom.	dBA	63	
Sound pressure level	Heating	Nom.	dBA	48 <sup>6</sup>	49 <sup>6</sup>
	Cooling	Nom.	dBA	48 <sup>6</sup>	50 <sup>6</sup>
Compressor component	Main power supply	Name		V3	
		Phase		1~	
		Frequency	Hz	50	
		Voltage	V	230	

(1) Tamb 35°C - LWE 18°C (DT=5°C) (2) DB/WB 7°C/6°C - LWC 35°C (DT=5°C) (3) Tamb 35°C - LWE 7°C (DT=5°C) (4) DB/WB 7°C/6°C - LWC 45°C (Dt=5°C) (5) 15°C-25°C: BUH only, no heat pump operation = during commissioning

## MONOBLOC SYSTEM

## CONTROL BOX



INDOOR UNIT				EKCV(B/H)008BCV3
Dimensions	Unit	Height	mm	390
		Width	mm	412
		Depth	mm	100
		Depth with remote control mounted on front plate	mm	120
Weight	Unit		kg	6
Operation range	Cooling	Ambient	Min.~Max. °CDB	4~35

## HEATING ONLY

## MONOBLOC SYSTEM

## SINGLE PHASE



OUTDOOR UNIT WITH BOTTOM PLATE HEATER				EDLQ011BB6V3	EDLQ014BB6V3	EDLQ016BB6V3
OUTDOOR UNIT WITHOUT BOTTOM PLATE HEATER				EDHQ011BB6V3	EDHQ014BB6V3	EDHQ016BB6V3
Heating capacity	Nom.		kW	11.20 <sup>1</sup> / 10.87 <sup>2</sup>	14.00 <sup>1</sup> / 13.10 <sup>2</sup>	16.00 <sup>1</sup> / 15.06 <sup>2</sup>
Power input	Heating	Nom.	kW	2.56 <sup>1</sup> / 3.31 <sup>2</sup>	3.29 <sup>1</sup> / 4.01 <sup>2</sup>	3.88 <sup>1</sup> / 4.71 <sup>2</sup>
COP				4.38 <sup>1</sup> / 3.28 <sup>2</sup>	4.25 <sup>1</sup> / 3.27 <sup>2</sup>	4.12 <sup>1</sup> / 3.20 <sup>2</sup>
Dimensions	Unit	Height X Width X Depth	mm	1,418 X 1,435 X 382		
Weight	Unit		kg	180		
Hydraulic component	Back-up heater current	Type		6V3		
		Power supply	Phase/Frequency/Voltage	1~/50/230		
Operation range	Heating	Ambient	Min.~Max. °CWB	EDLQ: -20~-35 / EDHQ: -15~-35		
		Water side	Min.~Max. °C	15 ~55		
	Domestic hot water	Ambient	Min.~Max. °CDB	EDLQ: -20~-43 / EDHQ: -15~-43		
		Water side	Min.~Max. °C	25~80		
Refrigerant	Type			R-410A		
	Charge		kg	2.95		
Sound power level	Heating	Nom.	dBA	64	65	66
Sound pressure level	Heating	Nom.	dBA	51		52
Compressor component	Main power supply	Name		V3		
		Phase		1~		
		Frequency	Hz	50		
		Voltage	V	230		

(1) cooling Ta 35°C - LWE 18°C (DT = 5°C); heating Ta DB/WB 7°C/6°C - LWC 35°C (DT = 5°C)

(2) cooling Ta 35°C - LWE 7°C (DT = 5°C); heating Ta DB/WB 7°C/6°C - LWC 45°C (DT = 5°C)

## HEATING ONLY

## MONOBLOC SYSTEM

## THREE PHASE



OUTDOOR UNIT WITH BOTTOM PLATE HEATER				EDLQ011BB6W1	EDLQ014BB6W1	EDLQ016BB6W1
OUTDOOR UNIT WITHOUT BOTTOM PLATE HEATER				EDHQ011BB6W1	EDHQ014BB6W1	EDHQ016BB6W1
Heating capacity	Nom.		kW	11.20 <sup>1</sup> / 10.87 <sup>2</sup>	14.00 <sup>1</sup> / 13.1 <sup>2</sup>	16.00 <sup>1</sup> / 15.06 <sup>2</sup>
Power input	Heating	Nom.	kW	2.60 <sup>1</sup> / 3.21 <sup>2</sup>	3.30 <sup>1</sup> / 4.07 <sup>2</sup>	3.81 <sup>1</sup> / 4.66 <sup>2</sup>
COP				4.31 <sup>1</sup> / 3.38 <sup>2</sup>	4.24 <sup>1</sup> / 3.22 <sup>2</sup>	4.20 <sup>1</sup> / 3.23 <sup>2</sup>
Dimensions	Unit	Height X Width X Depth	mm	1,418 X 1,435 X 382		
Weight	Unit		kg	180		
Hydraulic component	Back-up heater current	Type		6W1		
		Power supply	Phase/Frequency/Voltage	3~/50/400		
Operation range	Heating	Ambient	Min.~Max. °CWB	EDLQ: -25~-35 / EDHQ: -15~-35		
		Water side	Min.~Max. °C	15 ~55		
	Domestic hot water	Ambient	Min.~Max. °CDB	EDLQ: -25~-43 / EDHQ: -15~-43		
		Water side	Min.~Max. °C	25~80		
Refrigerant	Type			R-410A		
	Charge		kg	2.95		
Sound power level	Heating	Nom.	dBA	64	65	66
Sound pressure level	Heating	Nom.	dBA	49	51	53
Compressor component	Main power supply	Name		W1		
		Phase		3N~		
		Frequency	Hz	50		
		Voltage	V	400		

(1) cooling Ta 35°C - LWE 18°C (DT = 5°C); heating Ta DB/WB 7°C/6°C - LWC 35°C (DT = 5°C)

(2) cooling Ta 35°C - LWE 7°C (DT = 5°C); heating Ta DB/WB 7°C/6°C - LWC 45°C (DT = 5°C)



## HEATING &amp; COOLING

## MONOBLOC SYSTEM

## SINGLE PHASE



WITH BOTTOM PLATE HEATER					EBLQ011BB6V3		EBLQ014BB6V3		EBLQ016BB6V3		
WITHOUT BOTTOM PLATE HEATER					EBHQ011BB6V3		EBHQ014BB6V3		EBHQ016BB6V3		
Heating capacity	Nom.			kW	11.20 <sup>1</sup> / 10.87 <sup>2</sup>		14.00 <sup>1</sup> / 13.10 <sup>2</sup>		16.00 <sup>1</sup> / 15.06 <sup>2</sup>		
Cooling capacity	Nom.			kW	12.85 <sup>1</sup> / 10.00 <sup>2</sup>		15.99 <sup>1</sup> / 12.50 <sup>2</sup>		16.73 <sup>1</sup> / 13.10 <sup>2</sup>		
Power input	Cooling	Nom.		kW	3.87 <sup>1</sup> / 3.69 <sup>2</sup>		5.75 <sup>1</sup> / 5.39 <sup>2</sup>		6.36 <sup>1</sup> / 5.93 <sup>2</sup>		
	Heating	Nom.		kW	2.56 <sup>1</sup> / 3.31 <sup>2</sup>		3.29 <sup>1</sup> / 4.01 <sup>2</sup>		3.88 <sup>1</sup> / 4.71 <sup>2</sup>		
COP					4.38 <sup>1</sup> / 3.28 <sup>2</sup>		4.25 <sup>1</sup> / 3.27 <sup>2</sup>		4.12 <sup>1</sup> / 3.20 <sup>2</sup>		
EER					3.32 <sup>1</sup> / 2.71 <sup>2</sup>		2.78 <sup>1</sup> / 2.32 <sup>2</sup>		2.63 <sup>1</sup> / 2.21 <sup>2</sup>		
Dimensions	Unit		Height X Width X Depth		mm	1,418 X 1,435 X 382					
Weight	Unit				kg	180					
Hydraulic component	Back-up heater current	Type		6V3							
		Power supply	Phase/frequency/Voltage	Hz/V	1~/50/230						
Operation range	Heating	Ambient	Min.~Max.	°CWB	EBLQ: -20~35 / EBHQ: -15~35						
		Water side	Min.~Max.	°C	15~55						
	Cooling	Ambient	Min.~Max.	°CDB	10~46						
		Water side	Min.~Max.	°C	5~22						
	Domestic hot water	Ambient	Min.~Max.	°CDB	EBLQ: -20~43 / EBHQ: -15~43						
		Water side	Min.~Max.	°C	25~80						
Refrigerant	Type				R-410A						
	Charge				kg	2.95					
Sound power level	Heating	Nom.		dBa	64		65		66		
	Cooling	Nom.		dBa	65		66		69		
Sound pressure level	Heating	Nom.		dBa	5				52		
	Cooling	Nom.		dBa	50		52		54		
Compressor component	Main power supply	Name			V3						
		Phase			1~						
		Frequency			50						
		Voltage			230						

(1) cooling Ta 35°C - LWE 18°C (DT = 5°C); heating Ta DB/WB 7°C/6°C - LWC 35°C (DT = 5°C)

(2) cooling Ta 35°C - LWE 7°C (DT = 5°C); heating Ta DB/WB 7°C/6°C - LWC 45°C (DT = 5°C)

## HEATING &amp; COOLING

## MONOBLOC SYSTEM

## THREE PHASE



WITH BOTTOM PLATE HEATER				EBLQ011BB6W1		EBLQ014BB6W1		EBLQ016BB6W1			
WITHOUT BOTTOM PLATE HEATER				EBHQ011BB6W1		EBHQ014BB6W1		EBHQ016BB6W1			
Heating capacity	Nom.			kW	11.20 <sup>1</sup> / 10.87 <sup>2</sup>		14.00 <sup>1</sup> / 13.10 <sup>2</sup>		16.00 <sup>1</sup> / 15.06 <sup>2</sup>		
Cooling capacity	Nom.			kW	12.85 <sup>1</sup> / 10.00 <sup>2</sup>		15.99 <sup>1</sup> / 12.50 <sup>2</sup>		16.73 <sup>1</sup> / 13.10 <sup>2</sup>		
Power input	Cooling	Nom.		kW	3.87 <sup>1</sup> / 3.69 <sup>2</sup>		5.40 <sup>1</sup> / 5.06 <sup>2</sup>		6.15 <sup>1</sup> / 5.75 <sup>2</sup>		
	Heating	Nom.		kW	2.60 <sup>1</sup> / 3.21 <sup>2</sup>		3.30 <sup>1</sup> / 4.07 <sup>2</sup>		3.81 <sup>1</sup> / 4.66 <sup>2</sup>		
COP					4.31 <sup>1</sup> / 3.38 <sup>2</sup>		4.24 <sup>1</sup> / 3.22 <sup>2</sup>		4.20 <sup>1</sup> / 3.23 <sup>2</sup>		
EER					3.32 <sup>1</sup> / 2.71 <sup>2</sup>		2.96 <sup>1</sup> / 2.47 <sup>2</sup>		2.72 <sup>1</sup> / 2.28 <sup>2</sup>		
Dimensions	Unit		Height X Width X Depth		mm	1,418 X 1,435 X 382					
Weight	Unit				kg	180					
Hydraulic component	Back-up heater current	Type		6W1							
		Power supply	Phase/Frequency/Voltage	Hz/V	3~/50/400						
Operation range	Heating	Ambient	Min.~Max.	°CWB	EBLQ: -25~35 / EBHQ: -15~35						
		Water side	Min.~Max.	°C	15~55						
	Cooling	Ambient	Min.~Max.	°CDB	10~46						
		Water side	Min.~Max.	°C	5~22						
	Domestic hot water	Ambient	Min.~Max.	°CDB	EBLQ: -25~43 / EBHQ: -15~43						
		Water side	Min.~Max.	°C	25~80						
Refrigerant	Type			R-410A							
	Charge			kg	2.95						
Sound power level	Heating	Nom.		dBa	64		65		66		
	Cooling	Nom.		dBa	65		66		69		
Sound pressure level	Heating	Nom.		dBa	49		51		53		
	Cooling	Nom.		dBa	50		52		54		
Compressor component	Main power supply	Name			W1						
		Phase			3N~						
		Frequency			50						
		Voltage			400						

(1) cooling Ta 35°C - LWE 18°C (DT = 5°C); heating Ta DB/WB 7°C/6°C - LWC 35°C (DT = 5°C)

(2) cooling Ta 35°C - LWE 7°C (DT = 5°C); heating Ta DB/WB 7°C/6°C - LWC 45°C (DT = 5°C)

## DOMESTIC HOT WATER TANK



STAINLESS STEEL DOMESTIC HOT WATER TANK				EKHWS150B3V3	EKHWS200B3V3	EKHWS300B3V3	EKHWS200B3Z2	EKHWS300B3Z2
Casing	Colour			Neutral white				
	Material			Epoxy-coated mild steel				
Weight	Unit	Empty	kg	37	45	59	45	59
	Water volume			150	200	300	200	300
Tank	Material			Stainless steel (DIN 1.4521)				
	Maximum water temperature			85				
Heat exchanger	Quantity			1				
	Tube material			Duplex steel LDX 2101				
Booster heater	Capacity			3				
Power supply	Phase/Frequency/Voltage			1~/50/230			2~/50/400	

ENAMELED STEEL DOMESTIC HOT WATER TANK				EKHWE150A3V3	EKHWE200A3V3	EKHWE300A3V3	EKHWE200A3Z2	EKHWE300A3Z2
Casing	Colour			RAL9010				
	Material			Epoxy coated steel				
Weight	Unit	Empty	kg	80	104	140	104	140
	Water volume			150	200	300	200	300
Tank	Material			Enamel coated steel acc.DIN4753TL2				
	Maximum water temperature			75				
Booster heater	Capacity			3.0				
Power supply	Phase/Frequency/Voltage			1~/50/230			2~/50/400	

## DOMESTIC HOT WATER TANK FOR UNPRESSURIZED SOLAR CONNECTION



INDOOR UNIT				EKHWP300B	EKHWP500B
Dimensions	Unit	HeightxWidthxDepth	mm	1,640x595x615	1,640x790x790
Weight	Unit	Empty	kg	59	93
Tank	Water volume			300	500
	Maximum water temperature			85	
Heat exchanger	Domestic hot water	Tube material		Stainless steel	
		Face area	m <sup>2</sup>	5.8	6
		Internal coil volume	l	27.9	29
		Operating pressure	bar	6	
		Average specific thermal output	W/K	2,790	2,900
	Charging	Tube material		Stainless steel	
		Face area	m <sup>2</sup>	2.7	3.8
		Internal coil volume	l	13.2	18.5
		Operating pressure	bar	3	
		Average specific thermal output	W/K	1,300	1,800
	Auxiliary solar heating	Tube material		Stainless steel	
		Face area	m <sup>2</sup>	-	0.5
		Internal coil volume	l	-	2.3
		Operating pressure	bar	3	
		Average specific thermal output	W/K	-	280

## SOLAR CONNECTION - UNPRESSURIZED SYSTEM

SOLAR CONNECTION				EKSRPS3
Dimensions	Unit	HeightxWidthxDepth	mm	-
Control	Type	Digital temperature difference controller with plain text display		
	Power consumption	W	-	
Mounting				On side of tank
Sensor	Solar panel temperature sensor			Pt1000
	Storage tank sensor			PTC
	Return flow sensor			PTC
	Feed temperature and flow sensor			Voltage signal (3.5V DC)

## SOLAR CONNECTION - PRESSURIZED SYSTEM



SOLAR CONNECTION				EKSOLHWAV1
Dimensions	Unit	HeightxWidthxDepth	mm	770x305x270
Weight	Unit		kg	8
Operation range	Outdoor temperature	Min.~Max.	°C	1~35
Sound pressure level	Nom.		dB(A)	27
Thermal performance	Zero loss collector efficiency $\eta_0$		%	-
Power supply	Phase/Frequency/Voltage			1~/50/220-240
Power supply intake				Indoor unit

ACCESSORY				EKSR3PA
Mounting				On wall
Dimensions	Unit	HeightxWidthxDepth	mm	332x230x145
Thermal performance	Zero loss collector efficiency $\eta_0$		%	-
Control	Type			Digital temperature difference controller with plain text display
	Power consumption			2
Sensor	Solar panel temperature sensor			Pt1000
	Storage tank sensor			PTC
	Return flow sensor			PTC
	Feed temperature and flow sensor			Voltage signal (3.5V DC)
Power supply	Frequency/Voltage			50/230

## SOLAR COLLECTOR



SOLAR COLLECTOR				EKSV26P	EKSH26P
Dimensions	Unit	HeightxWidthxDepth	mm	2,000x1,300x85	1,300x2,000x85
Weight	Unit		kg		43
Volume			l	1.7	2.1
Surface	Outer		m <sup>2</sup>	2.601	
	Aperture		m <sup>2</sup>	2.364	
	Absorber		m <sup>2</sup>	2.354	
Coating				Micro-therm (absorption max.96%, Emission ca. 5% +/- 2%)	
Absorber				Harp-shaped copper pipe register with laser-welded highly selective coated aluminium plate	
Glazing				Single pane safety glass, transmission +/- 92%	
Allowed roof angle	Min.~Max.		°	15~80	
Operating pressure	Max.		bar	6	
Stand still temperature	Max.		°C	200	
Thermal performance	Zero loss collector efficiency $\eta_0$		%	78.7	
	Heat loss coefficient a1		W/m <sup>2</sup> .K	4.270	
	Temperature dependence of the heat loss coefficient a2		W/m <sup>2</sup> .K <sup>2</sup>	0.0070	
	Thermal capacity		kJ/K	6.5	
	Incident angle modifier	AM at 50°		0.94	
Installed position				Vertical	Horizontal

## HEAT PUMP CONVECTOR



INDOOR UNIT				FWXV15A	FWXV20A
Heating capacity	Total capacity	Nom.	kW	1.5	2.0
			Btu/h	5,100	6,800
Cooling capacity	Total capacity	Nom.	kW	1.2	1.7
	Sensible capacity	Nom.	kW	0.98	1.4
Power input	Heating	Nom.	kW	0.013	0.015
	Cooling	Nom.	kW	0.013	0.015
Dimensions	Unit	HeightxWidthxDepth	mm	600x700x210	
Weight	Unit		kg	15	
Piping connections	Drain/OD/Inlet/Outlet			18/G 1/2/G 1/2	
Sound pressure level	Heating	Nom.	dBA	19	29
	Cooling	Nom.	dBA	19	29
Power supply	Phase/Frequency/Voltage			1~/50/60/220-240/220	

## ROOM THERMOSTAT



WIRED ROOM THERMOSTAT				EKRTWA
Dimensions	Unit	Height/Width/Depth	mm	87/125/34
Weight	Unit		g	215
Outdoor temperature	Storage	Min./Max.	°C	-20/60
	Operation	Min./Max.	°C	0/50
Temperature setting range	Heating	Min./Max.	°C	4/37
	Cooling	Min./Max.	°C	4/37
Clock				Yes
Regulation function				Proportional band
Power supply	Voltage		V	Battery powered 3* AA-LR6 (alkaline)
Connection	Type			Wired

WIRELESS ROOM THERMOSTAT				EKRTR1
Dimensions	Thermostat	Height/Width/Depth	mm	87/125/34
	Receiver	Height/Width/Depth	mm	170/50/28
Weight	Thermostat		g	210
	Receiver		g	125
Outside temperature	Storage	Min./Max.	°C	-20/60
	Operation	Min./Max.	°C	0/50
Temperature setting range	Heating	Min./Max.	°C	4/37
	Cooling	Min./Max.	°C	4/37
Clock				Yes
Regulation function				Proportional band
Power supply	Thermostat	Voltage	V	Battery powered 3x AA-LRG (alkaline)
	Receiver	Voltage	V	230
	Frequency		Hz	50
	Phase			1~
Connection	Thermostat			Wireless
	Receiver			Wired
Maximum distance to receiver	Indoor		m	approx.30m
	Outdoor		m	approx.100m



## → 2. DAIKIN ALTHERMA HIGH TEMPERATURE

### INDOOR UNITS



INDOOR UNITS				EKHBRD011ACV1	EKHBRD014ACV1	EKHBRD016ACV1	EKHBRD011ACY1	EKHBRD014ACY1	EKHBRD016ACY1
Heating capacity	Nom. kW			11 <sup>1</sup>	14 <sup>1</sup>	16 <sup>1</sup>	11 <sup>1</sup>	14 <sup>1</sup>	16 <sup>1</sup>
				11 <sup>2</sup>	14 <sup>2</sup>	16 <sup>2</sup>	11 <sup>2</sup>	14 <sup>2</sup>	16 <sup>2</sup>
				11 <sup>3</sup>	14 <sup>3</sup>	16 <sup>3</sup>	11 <sup>3</sup>	14 <sup>3</sup>	16 <sup>3</sup>
Power input	Heating	Nom. kW		3.57 <sup>1</sup>	4.66 <sup>1</sup>	5.57 <sup>1</sup>	3.57 <sup>1</sup>	4.66 <sup>1</sup>	5.57 <sup>1</sup>
				4.40 <sup>2</sup>	5.65 <sup>2</sup>	6.65 <sup>2</sup>	4.40 <sup>2</sup>	5.65 <sup>2</sup>	6.65 <sup>2</sup>
				2.61 <sup>3</sup>	3.55 <sup>3</sup>	4.31 <sup>3</sup>	2.61 <sup>3</sup>	3.55 <sup>3</sup>	4.31 <sup>3</sup>
COP				3.08 <sup>1</sup>	3.00 <sup>1</sup>	2.88 <sup>1</sup>	3.08 <sup>1</sup>	3.00 <sup>1</sup>	2.88 <sup>1</sup>
				2.50 <sup>2</sup>	2.48 <sup>2</sup>	2.41 <sup>2</sup>	2.50 <sup>2</sup>	2.48 <sup>2</sup>	2.41 <sup>2</sup>
				4.22 <sup>3</sup>	3.94 <sup>3</sup>	3.72 <sup>3</sup>	4.22 <sup>3</sup>	3.94 <sup>3</sup>	3.72 <sup>3</sup>
Casing	Colour			Metallic grey					
	Material			Precoated sheet metal					
Dimensions	Unit	Height/Width/Depth	mm	705/600/695					
Weight	Unit			144.25			147.25		
Operation range	Heating	Ambient	Min.~Max. °C	-20~20					
		Water side	Min.~Max. °C	25~80					
	Domestic hot water	Ambient	Min.~Max. °CDB	-20~35					
		Water side	Min.~Max. °C	25~80					
Refrigerant	Type			R-134a					
	Charge	kg		3.2					
Sound pressure level	Nom. dBA		43	45	46	43 <sup>1</sup>	45 <sup>1</sup>	46 <sup>1</sup>	
			46	46	46	46 <sup>2</sup>	46 <sup>2</sup>	46 <sup>2</sup>	
	Night quiet mode	Level 1	dBA	40	43	45	40 <sup>1</sup>	43 <sup>1</sup>	45 <sup>1</sup>
Power supply	Name			V1			Y1		
	Phase			1~			3~		
	Frequency		Hz	50					
	Voltage		V	220-240			380-415		
Current	Recommended fuses		A	25			16		

(1) EW 55°C; LW 65°C; Dt 10°C; ambient conditions: 7°CDB/6°CWB | (2) EW 70°C; LW 80°C; Dt 10°C; ambient conditions: 7°CDB/6°CWB | (3) EW 30

### OUTDOOR UNITS



WITH BOTTOM PLATE HEATER				ERRQ011AV1	ERRQ014AV1	ERRQ016AV1	ERRQ011A	ERRQ014A	ERRQ016A
Dimensions	Unit	Height/Width/Depth	mm	1,345/900/320					
Weight	Unit		kg	120					
Operation range	Heating	Min.~Max.	°CWB	-20~20					
	Domestic hot water	Min.~Max.	°CDB	-20~35					
Refrigerant	Type			R-410A					
	Charge		kg	4.5					
Sound power level	Heating	Nom.	dBA	68	69	71	68	69	71
Sound pressure level	Heating	Nom.	dBA	52	53	55	52	53	55
Power supply	Name;Phase;Frequency;Voltage		Hz;V	V1;1~/50;220-440			Y1/3~/50/380-415		
Current	Recommended fuses		A	25			16		

WITHOUT BOTTOM PLATE HEATER				ERSQ011A	ERSQ014A	ERSQ016A	ERSQ011AY1	ERSQ014AY1	ERSQ016AY1
Dimensions	Unit	Height/Width/Depth	mm	1.345/900/320					
Weight	Unit		kg	120					
Operation range	Heating	Min.~Max.	°CWB	-20~20					
	Domestic hot water	Min.~Max.	°CDB	-20~35					
Refrigerant	Type			R-410A					
	Charge		kg	4.5					
Sound power level	Heating	Nom.	dBA	68	69	71	68	69	71
Sound pressure level	Heating	Nom.	dBA	52	53	55	52	53	55
Power supply	Name/Phase/Frequency/Voltage		Hz/V	V1/1~/50/220-440			Y1/3~/50/380-415		
Current	Recommended fuses		A	25			16		



## DOMESTIC HOT WATER TANK



DOMESTIC HOT WATER TANK				EKHTS200AC	EKHTS260AC
Casing	Colour			Metallic grey	
	Material			Galvanised steel (precoated sheet metal)	
Dimensions	Unit	Height/Integrated on indoor unit/Width/Depth	mm	1,335/2,010/600/695	1,335/2,285/600/695
Weight	Unit	Empty	kg	70	78
Heat exchanger	Quantity			1	
	Tube material			Duplex steel (EN 1.4162)	
	Face area		m <sup>2</sup>	1.56	
	Internal coil volume		l	7.5	
Power supply	Phase			-	
Tank	Water volume		l	200	260
	Material			Stainless steel (EN 1.4521)	
	Maximum water temperature		°C	75	

DOMESTIC HOT WATER TANK FOR SOLAR CONNECTION				EKHWP300B	EKHWP500B
Dimensions	Unit	HeightxWidthxDepth	mm	1640x595x615	1640x790x790
Weight	Unit	Empty	kg	59	93
Tank	Water volume		l	300	500
	Maximum water temperature		°C	85	
Heat exchanger	Domestic hot water	Tube material		Stainless steel	
		Face area	m <sup>2</sup>	5.8	6
		Internal coil volume	l	27.9	29
		Operating pressure	bar	6	
		Average specific thermal output	W/K	2,790	2,900
	Charging	Tube material		Stainless steel	
		Face area	m <sup>2</sup>	2.7	3.8
		Internal coil volume	l	13.2	18.5
		Operating pressure	bar	3	
		Average specific thermal output	W/K	1,300	1,800
	Auxiliary solar heating	Tube material		Stainless steel	
		Face area	m <sup>2</sup>	-	0.5
		Internal coil volume	l	-	2.3
		Operating pressure	bar	3	
		Average specific thermal output	W/K	-	280

## SOLAR COLLECTOR



SOLAR COLLECTOR				EKSV26P	EKSH26P
Dimensions	Unit	HeightxWidthxDepth	mm	2,000x1,300x85	1,300x2,000x85
Weight	Unit		kg	43	
Volume			l	1.7	2.1
Surface	Outer		m <sup>2</sup>	2.601	
	Aperture		m <sup>2</sup>	2.364	
	Absorber		m <sup>2</sup>	2.354	
Coating				Micro-therm (absorption max.96%, Emission ca. 5% +/-2%)	
Absorber				Harp-shaped copper pipe register with laser-welded highly selective coated aluminium plate	
Glazing				Single pane safety glass, transmission +/- 92%	
Allowed roof angle	Min.-Max.		°	15~80	
Operating pressure	Max.		bar	6	
Stand still temperature	Max.		°C	200	
Thermal performance	Zero loss collector efficiency $\eta_0$		%	78.7	
	Heat loss coefficient $a_1$		W/m <sup>2</sup> .K	4,270	
	Temperature dependence of the heat loss coefficient $a_2$		W/m <sup>2</sup> .K <sup>2</sup>	0.0070	
	Thermal capacity		kJ/K	6.5	
	Incident angle modifier	AM at 50°		0.94	
Installed position				Vertical	Horizontal

## SOLAR CONNECTION

SOLAR CONNECTION				EKSRPS3
Dimensions	Unit	HeightxWidthxDepth	mm	-
Control	Type			Digital temperature difference controller with plain text display
	Power consumption		W	-
Mounting				On side of tank
Sensor	Solar panel temperature sensor			Pt1000
	Storage tank sensor			PTC
	Return flow sensor			PTC
	Feed temperature and flow sensor			Voltage signal (3.5V DC)

## → 3. DAIKIN ALTHERMA HYBRID HEAT PUMP

### INDOOR UNITS



INDOOR UNIT				GAS MODULE	
				EHYKOMB33AA	
Function				Heating only	
Thermal Load (Hi)	Min. - Max.		kW	7.5-32.7	
Heating Power CH	Min. - Max.	80/60	kW	7.9-31.9	
Efficiency CH	NCV	80/60	%	98	
Efficiency CH	NCV	40/30 (30%)	%	107	
Heating Power DHW	Min. - Max.		kW	7.9-31.9	
Efficiency DHW	NCV		%	105	
Casing	Colour			RAL9010	
Dimensions	Unit	HeightxWidthxDepth	mm	710x450x240	
Weight	Unit		kg	36	

INDOOR UNIT				HEAT PUMP MODULE	
				EHYHBH05A	EHYHBH08AV3
Function				Heating only	
Casing	Colour			S5730 White	
Dimensions	Unit	HeightxWidthxDepth	mm	902x450x164	
Weight	Unit		kg	29,8	-

### OUTDOOR UNITS



OUTDOOR UNIT				EVLQ05CV3	EVLQ08CV3
Heating capacity	Nom.	Heat pump operation only	kW	4.40 <sup>1</sup> 4.03 <sup>2</sup>	7.40 <sup>1</sup> 6.89 <sup>2</sup>
COP	Heat pump operation only			5.04 <sup>1</sup> 3.58 <sup>2</sup>	4.45 <sup>1</sup> 3.42 <sup>2</sup>
Dimensions	Unit	HeightxWidthxDepth	mm	735x825x300	
Sound power level	Heating	Nom.	dBA	61	62
Sound pressure level	Heating	Nom.	dBA	48	49

(1) heating Ta DB/WB 7°C/6°C - LWC 35°C (DT = 5°C)

(2) heating Ta DB/WB 7°C/6°C - LWC 45°C (DT = 5°C)

## → 4. DAIKIN ALTHERMA FLEX TYPE

### INDOOR UNITS



INDOOR UNIT			EKHVMRD50AV1	EKHVMRD80AV1	EKHVMYD50AV1	EKHVMYD80AV1
Function			Heating only		Heating and cooling	
Dimensions	HxWxD	mm	705x600x695		705x600x695	
Leaving water temperature range	heating	℃	25~80		25~80	
Material			Precoated sheet metal		Precoated sheet metal	
Colour			Metallic grey		Metallic grey	
Sound pressure level	nominal	dB(A)	40' / 43 <sup>2</sup>	42' / 43 <sup>2</sup>	40' / 43 <sup>2</sup>	42' / 43 <sup>2</sup>
Weight		kg	92		120	
Refrigerant	Type		R-134a		R-134a	
	Charge	kg	2	2	2	2
Power supply			1~/ 50Hz /220-240V		1~/ 50Hz /220-240V	

(1) Sound levels are measured at:EW 55°C; LW 65°C (2) Sound levels are measured at:EW 70°C; LW 80°C

				EKHBRD011ACV1	EKHBRD014ACV1	EKHBRD016ACV1	EKHBRD011ACY1	EKHBRD014ACY1	EKHBRD016ACY1	
Casing	colour material			Metallic grey						
				Precoated sheet metal						
Dimensions	unit	height/width/depth		mm	705/600/695					
Weight	unit			kg	144.25			147.25		
Operation range	heating	ambient	min.~max.	°C	-20~20					
		water side	min.~max.	°C	25~80					
	domestic hot water	ambient	min.~max.	°CDB	-20~35					
		water side	min.~max.	°C	25~80					
Refrigerant	type			R-134a						
	charge			kg	3.2					
Sound pressure level	nom.		dBA		43 <sup>1</sup> 46 <sup>2</sup>	45 <sup>1</sup> 46 <sup>2</sup>	46 <sup>1</sup> 46 <sup>2</sup>	43 <sup>1</sup> 46 <sup>2</sup>	45 <sup>1</sup> 46 <sup>2</sup>	46 <sup>1</sup> 46 <sup>2</sup>
	night quiet mode	level 1		dBA	40 <sup>1</sup>	43 <sup>1</sup>	45 <sup>1</sup>	40 <sup>1</sup>	43 <sup>1</sup>	45 <sup>1</sup>
Power supply	name			V1			Y1			
	phase			1~			3~			
	frequency			Hz	50					
	voltage			V	220-240			380-415		
Current	recommended fuses			A	25			16		

(1) EW 55°C; LW 65°C; Dt 10°C; ambient conditions: 7°CDB/6°CWB (2) EW 70°C; LW 80°C; Dt 10°C; ambient conditions: 7°CDB/6°CWB (3) EW 30

## OUTDOOR UNITS



OUTDOOR UNIT			EMRQ8AY1	EMRQ10AY1	EMRQ12AY1	EMRQ14AY1	EMRQ16AY1
Nominal capacity	heating	kW	22.4	28	33.6	39.2	44.8
	cooling	kW	20	25	30	35	40
Capacity range		HP	8	10	12	14	16
Dimensions	HxWxD	mm	1680x1300x765				
Weight		kg	331			339	
Sound power level	heating	dB(A)	78		80	83	84
Sound pressure level	heating	°C	58		60	62	63
Operation range	heating	°C	-20°C~20*				
	domestic water	°C	-20°C~35*				
Refrigerant	type	kg	R-410A				
Power supply			3~/50Hz/380-415V				
Piping connections	liquid	mm	9.52		12.7		
	suction	mm	19.1	22.2	28.6		
	high&low pressure gas		15.9	19.1		22.2	
	max total length		300				
	level difference OU-IU		40				
Recommended fuses		A	20	25		40	

Heating conditions: Ta = 7°CDB / 6°CWB, 100% connection ratio

Cooling conditions: Ta = 35°CDB, 100% connection ratio

\*Capacity not guaranteed between -20°C and -15°C

## DOMESTIC HOT WATER TANK



DOMESTIC HOT WATER TANK			EKHTS200AC	EKHTS260AC
Water volume	l		200	260
Max. water temperature	°C		75°C	
Dimensions	HxWxD	mm	1,335x600x695	1,610x600x695
Dimensions - integrated on indoor unit	HxWxD	mm	2,010x600x695	2,285x600x695
Material outside casing			Galvanised metal	
Colour			Metallic grey	
Empty weight	kg		70	78

## HEAT PUMP CONVECTOR



HEAT PUMP CONVECTOR				FWXV15A	FWXV20A
Heating capacity	Total capacity	Nom.	kW	1.5	2.0
			Btu/h	5,100	6,800
Cooling capacity	Total capacity	Nom.	kW	1.2	1.7
	Sensible capacity	Nom.	kW	0.98	1.4
Power input	Heating	Nom.	kW	0.013	0.015
	Cooling	Nom.	kW	0.013	0.015
Dimensions	Unit	HeightxWidthxDepth	mm	600x700x210	
Weight	Unit		kg	15	
Piping connections	Drain/OD/Inlet/Outlet		mm/inch	18/G 1/2/G 1/2	
Sound pressure level	Heating	Nom.	dBA	19	29
	Cooling	Nom.	dBA	19	29
Power supply	Phase/Frequency/Voltage		Hz/V	1~/50/60/220-240/220	

## → 5. DAIKIN ALTHERMA GROUND SOURCE HEAT PUMP

Technical data coming soon







## 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.



Today, Daikin leads the way towards more efficient, cost-effective and environmentally friendly comfort solutions, introducing products optimised for all seasons. In fact, Daikin products reduce energy and costs in a smart way. They are designed to perform under all conditions and reflect the actual performance you can expect over an entire heating and cooling season. So, with Daikin you make the right choice for your wallet... and the environment.

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Only applicable for Daikin Altherma low temperature units. Daikin Altherma high temperature units are not in scope of the Eurovent certification programme.

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