DAIKIN

THE INTELLIGENT WAY TO COMFORT

altherma°

EFFICIENCY & PROFITABILITY

WITH ENERGY PRICES SOARING

People are becoming more and more aware of the cost of heating. Traditional heating systems and boilers use fossil fuels, making them an expensive and not sustainable option for the environment. Nobody wants to waste their money. Since two thirds of the heat generated by the Altherma air source heat pump system is free of charge and maintenance is minimal, the perfect solution is just around the corner.

NECESSITY IS THE MOTHER OF INVENTION

House building technology has taken giant leaps forward. Insulation techniques have improved drastically. For new and recently refurbished houses and flats Altherma provides the latest heat pump boiler technology to save you money.

SO IF YOU TAKE A CLOSER LOOK

It is no surprise that people throughout Europe are becoming aware of new heating technology. In less than a decade practically all properly insulated homes from Italy to Norway will be heated with heat pump boilers. Millions of pumps have already been installed. So… WHY WAIT?

66 TO 80% FREE OF CHARGE

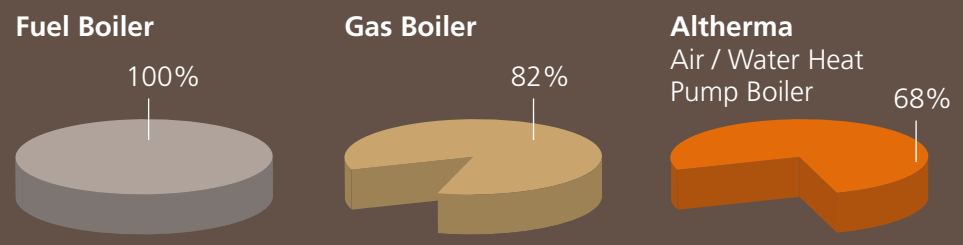
A heat pump boiler works much more efficiently and saves more energy than a traditional heating system based on fossil fuels. With Altherma, 1 kW of electricity consumption generates 3kW to 5 kW of free heat. That's an investment that pays.

PER (Primary Energy Ratio)

Is the relation between the useful energy output and the primary energy input, taking into account for losses related to the electricity generation efficiency and electricity distribution.

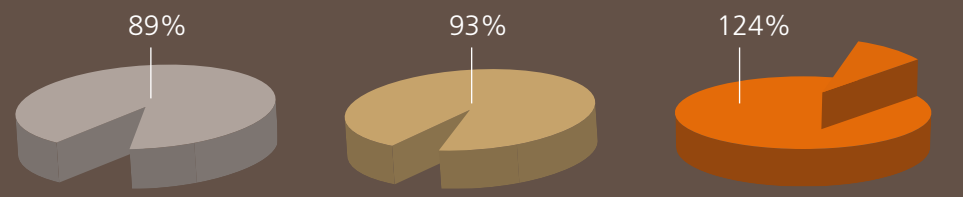
RUNNING COST:

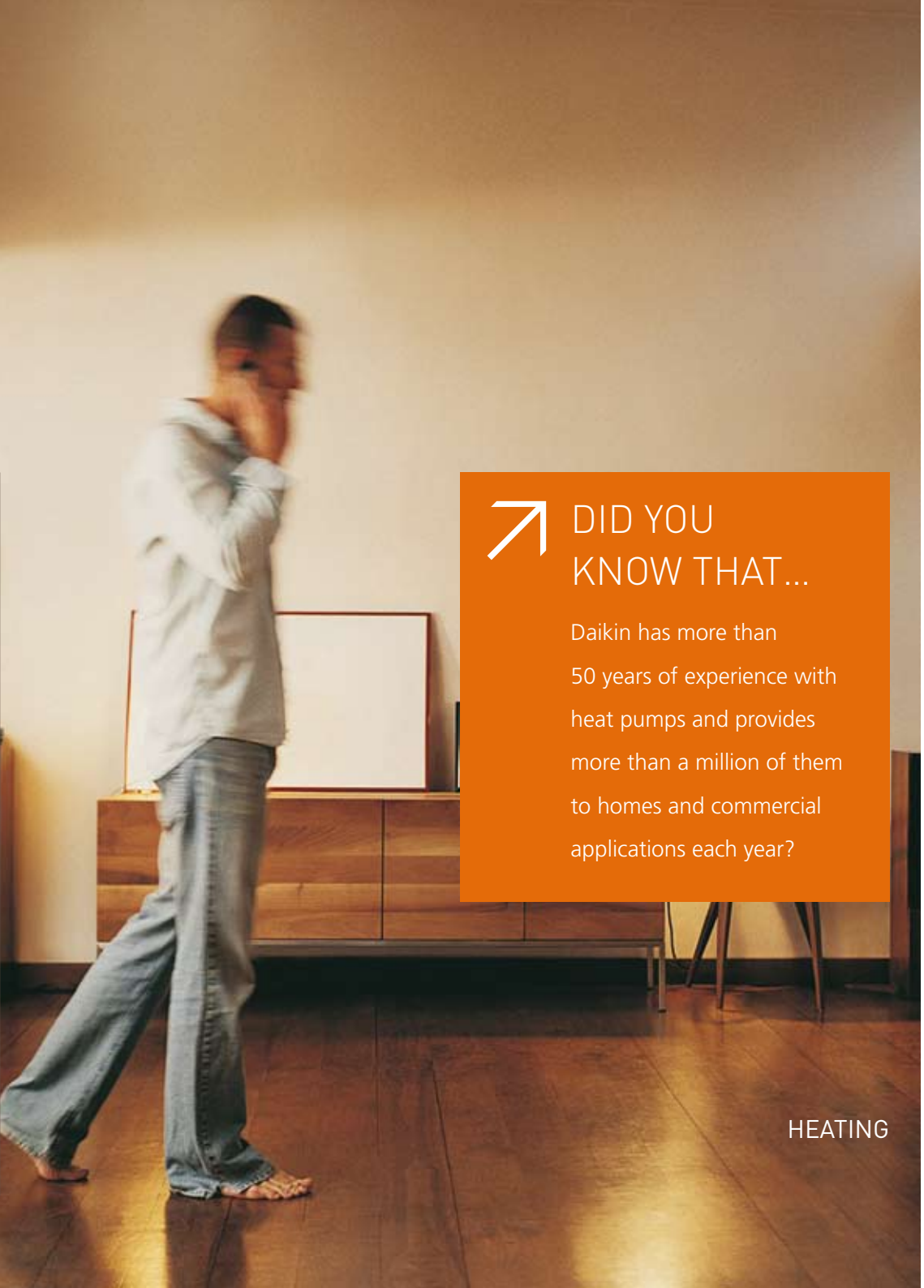
Conditions : Annual heating energy required: 20 000 kWh
Source : Energy prices based on EUROSTAT statistics (first semester 2007).



PRIMARY ENERGY EFFICIENCY

Conditions: For combustion systems PER equals overall efficiency of the system, whereas for heat pumps it is equal to the seasonal performance factor multiplied by the electricity generation efficiency for which EU average is 0,4.





DID YOU KNOW THAT...

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

MEANWHILE HEAT PUMP TECHNOLOGY ITSELF HAS MATURED

Altherma, which extracts and converts an increased natural heat from the ambient air to your home, is the perfect example. The Altherma heat pump boiler satisfies your heating requirements but it can also supply your domestic hot water. For hot summer days, as an option, Altherma can also give you cooling. It is an all-in-one, all year round heating and cooling solution.

ALTHERMA
AT THE GLANCE

AMBIENT WARMTH, THANKS TO A UNIQUE HEAT PUMP BOILER SYSTEM

WARM IN JUST 1, 2, 3

Altherma's air-to-water heat pump boiler quickly creates an optimal room temperature for you and your family. You enjoy a comfortably warm environment in just 3 steps:

1. The heat pump extracts free low temperature heat from the outside air.
2. The system raises the temperature of the recovered heat.
3. This greater warmth is then distributed throughout your home via heating emitters.

STAY WARM EVEN IN THE COLDEST WINTER DAYS

On extremely cold days it is virtually impossible to keep you warm with free thermal energy from the outside air only. The Altherma system has taken care of that. For houses located in extreme climates with occasional or frequent freezing days, Altherma comes with an electric back-up heater inside the hydrobox. Even on the coldest day you can still have the heat pump boiler cover 60% of your requirements; the back up heater will take care of your remaining heating demand. Altherma guarantees you are never left out in the cold and, on an annual basis, the heat pump itself will still supply 90 to 95% of your heating requirements!

DID YOU KNOW THAT...

the Altherma system can be perfectly combined with solar collectors via a solar kit to produce hot water. The sun provides 30 to 70% of the energy required for our hot water needs. Altherma, your total solution, thinks of the future.

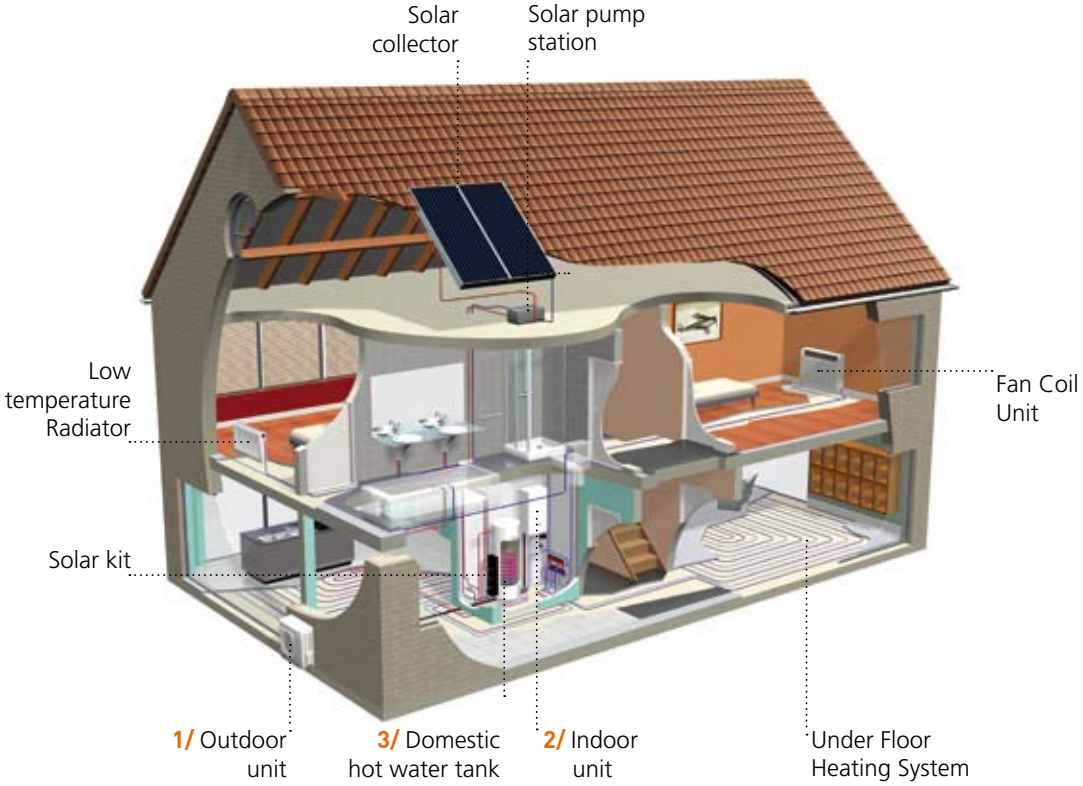
THE SOLUTION FOR YOUR TOTAL COMFORT

1/ OUTDOOR UNIT : AN EFFICIENT USE OF ENERGY FROM THE AIR

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

2/ INDOOR UNIT : THE HEART OF THE ALTHERMA SYSTEM

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



3/ DOMESTIC HOT WATER TANK : FOR LOW ENERGY CONSUMPTION

As for your domestic hot water, Altherma is just as clever. The unique lay-out and special placement of the system components maximise energy efficiency. The water inside the storage tank is primarily warmed up by thermal energy from the outside air, thanks to a heat exchanger connected to the heat pump. However, an additional electrical heating element in the domestic water tank can take care of extra heat required in the shower, tub or sink. At necessary intervals the water is automatically heated to 70°C to prevent the risk of bacteria growth. With Altherma you can enjoy delightfully warm and perfectly safe water at all times. Depending on the daily consumption of hot water, Altherma domestic hot water tanks are available in three different sizes.

INTELLIGENT TEMPERATURE REGULATOR

The operation of the system is integrated in the indoor unit. With Altherma, it is possible to regulate your heating and (optional) cooling system according to your needs. Your Daikin installer can set up a full weekly programme for you, per hour or per day. In this way, the temperature is reduced automatically at night or during your holiday, but will be pleasantly warm when you get up or return home.
The floating setpoint is a built-in variable thermostat that adjusts the water temperature to the outdoor temperature. By keeping the water temperature at the lowest possible level, maximum efficiency of the system is achieved.
The system can be combined with additional temperature regulating systems with separate thermostats for every single room.

BASICS OF HEAT PUMP

DID YOU KNOW THAT...

In nature, thermal energy travels from a higher to a lower level, from warm objects to colder ones. Simple: place a cup of coffee on your terrace table and it will cool down until it reaches the temperature of the surrounding air. A heat pump does the opposite. It is a system that "pumps" thermal energy from a lower to a higher level. Same happens with water. Water naturally runs from higher to lower places, but it can be pumped in the opposite direction.

1/ WHAT'S THE MAGIC BEHIND HEAT PUMPS?

It all starts with the sun. The sun warms up our atmosphere and the outer layer of the earth's crust. In one year the energy sent to the earth by the sun is 50 times higher than the total consumption of energy on our planet. This makes the sun a vast and inexhaustible source of energy.

On sunny days you can feel the thermal energy from the sun on your skin. But actually, there is always lots of thermal energy in the air, even on cold winter days or even at night. And not only in Florida or the south of Spain, but also in countries like Sweden or Norway where thousands of houses have already heat pumps.

2/ HOW DO THEY WORK?

Heat pumps take thermal energy from the atmosphere, or from water (rivers, lakes,...) or from the ground. With Altherma energy is extracted from the outside air which is cheaper and easier than the other alternatives. In order to take energy from the air the heat pump needs a bit of energy to start with: Altherma requires only 1 kilowatt of electricity to pump 3 to 5 kilowatt of heat into your home. In other words, 66 to 80% of the heat produced by Altherma comes from the outside air and is free of charge.

3/ WHY DO HEAT PUMPS CONTRIBUTE TO LOW CO_2 EMISSIONS?

Heat pumps emissions are considerably lower than those of conventional heating systems. Because heat pumps consume little energy, CO_2 emissions are reduced too since these are restricted to the electricity the pumps need.

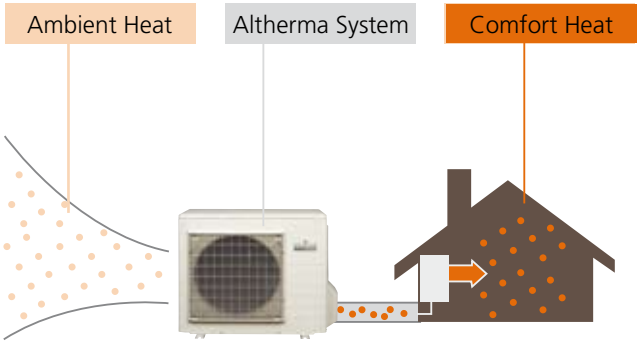
4/ ... SO WHY DO PEOPLE HESITATE?

In spite of these undeniable benefits, heat pumps remain a mystery for many people. The concept of "heat" transfer from a cold source to a cold interior might not be intuitive to everybody at a first glance. But there's nothing mysterious about heat pumps.

5/ WHERE DOES IT ALL START?

A heat pump only needs a heat source (the outside air), two heat exchangers (one to absorb and another one to release heat) and a relatively small amount of drive energy to keep the system going.

A heat pump extracts thermal energy from the environment. In the case of Altherma the source is the outside air. The pump extracts the energy at a certain temperature, increases that temperature and then releases it into a medium which in Altherma system is the water running to your low temperature radiators, under floor heating system or fan coil units. Between those two media the heat is moved by means of a refrigerant.



6/ WHAT IS A REFRIGERANT AND WHAT IS ITS ROLE?

This refrigerant is a special liquid that evaporates at a lower temperature than the temperature of the outside air. Copper coils bring the outside air into contact with the refrigerant, which absorbs thermal energy from the air. This is the first heat exchange. The refrigerant then evaporates and as you know, extracts heat. If you lick your finger and blow on the wet spot, the saliva dries up and your skin turns cold. What you feel is heat being extracted from the underlying tissues of your finger

7/ COMPRESSOR – THE ESSENCE OF HEAT PUMPS

As the refrigerant passes through the evaporator and extracts heat from the air, it turns into a gas. This is where the compressor comes up. When you compress a gas, the heat energy in the gas is concentrated together with the molecules and as a result, the temperature rises. If you inflate the tyre of your bicycle, you can feel the air inside warming up through the rubber.

In a heat pump compressor, the temperature rises far above the original temperature of the source (outside air in the case of Altherma). Inside your house the second heat exchange takes place when the compressed gas enters the condenser, a surface which is colder than the gas itself. Finally, the gas condenses and releases heat – the heat that warms up your house.

Condensing means that the gas turns into a fluid again. It passes through an expansion valve, resumes its original pressure and the whole process can start all over.

ALTHERMA ADVANTAGES

CHOOSING ALTHERMA ... NOTHING BUT BENEFITS!

LESS ENERGY, PLEASANT WARMTH IN THE HOME

Altherma heats up to 5 times more efficiently than a traditional heating system based on fossil fuels or electricity. By making use of the heat in the outside air, you use much less energy while still enjoying a stable and pleasant level of comfort.
Also, maintenance requirements are minimal making your running cost low. Thanks to the inverter technology, your energy savings are even greater.

MINIMAL INSTALLATION COST

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

FLEXIBLE CONFIGURATIONS

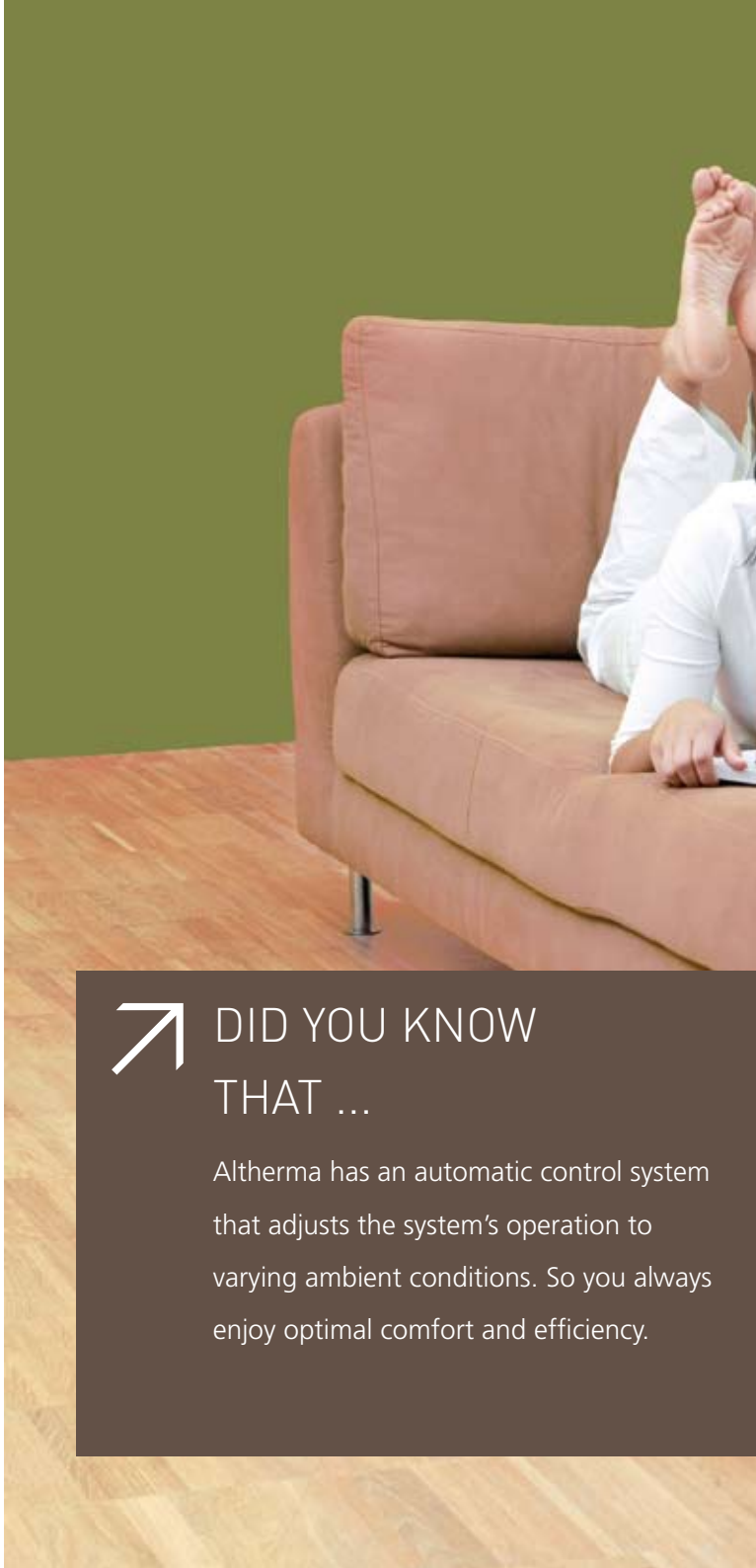
Altherma can be configured for use in both new and refurbishment applications, and connects to standard low temperature radiators, under floor heating or fan coil units. If you already have a heating system, there is no need to change it all.

COMPLETE COMFORT FOR YOUR FAMILY

Altherma satisfies your heating requirements but it can also supply your domestic hot water. It comes with a cooling option for hot summer days.

ABSOLUTELY SAFE

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



DID YOU KNOW THAT ...

Altherma has an automatic control system that adjusts the system's operation to varying ambient conditions. So you always enjoy optimal comfort and efficiency.

WE ARE BECOMING INCREASINGLY ENVIRONMENT-MINDED

Traditional heating systems that rely heavily on fossil fuels are increasingly coming under scrutiny due to the battle against CO_2-emissions. Stricter European standards regarding heating economy are becoming more relevant. Since two thirds of the heat generated by the Altherma system is from a renewable source, (the air), this modern technology will satisfy the needs to reduce CO_2 emissions and makes Altherma the right choice for new boiler installation.

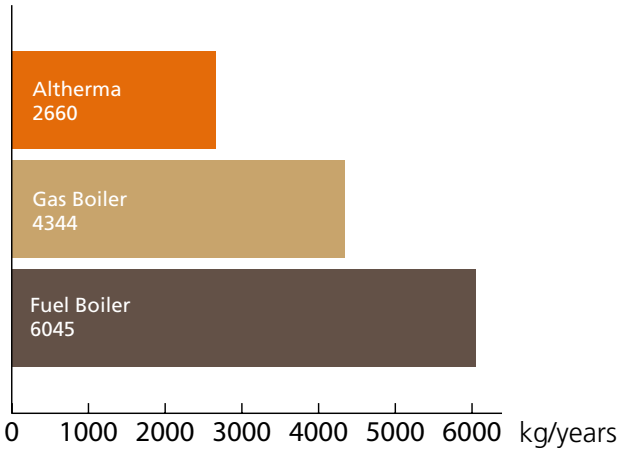
LESS CO_2 EMISSIONS

You can personally contribute to a better environment as Altherma emits no direct CO_2. The pump needs power but even without access to renewable electricity, the Altherma system emits far less CO_2 than fossil fuel boilers. You can personally contribute to a better environment as Altherma emits no direct CO_2.

RENEWABLE, INEXHAUSTIBLE ENERGY WITH SOLAR COLLECTORS.

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

AVERAGE ANNUAL $C0_2$ EMISSIONS



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

SERVICE FROM A TO Z

Altherma can be used in different configurations: on its own, with an electric back up heater or in combination with an existing fossil fuel boiler. To install your Altherma total solution, you can rely on a certified installer in your area. They will have all of the necessary expertise and experience to place your comfort system quickly and correctly, so that you can always count on optimal performance.

DID YOU KNOW THAT...

Did you know that … Daikin has set up a number of monitoring sites (in Scandinavia, Portugal, France, Belgium, ...), where 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.

INDOOR UNIT			EKHBH008AA***	EKHBX008AA***	EKHBH016AB***	EKHBX016AB***
Function			Heating only	Reversible	Heating only	Reversible
Diminsions	HxWxD	mm	922x502x361			
Leaving water temperature range	heating	°C	15~50		15~55	
	cooling	°C	-	5~22	-	5~22
Drain valve			yes			
Material			Epoxy polyester painted galvanised steel			
Colour			Neutral white			

FACTORY MOUNTED HEATER	kW	capacity steps	power supply
EKHBH(X)008AA3V3 / EKHBH(X)016AB3V3	3	1	1~/230V
EKHBH(X)008AA6V3 / EKHBH(X)016AB6V3	6	2	1~/230V
EKHBH(X)008AA6WN / EKHBH(X)016AB6WN	6	2	3~/400V
EKHBH(X)008AA6T1 / EKHBH(X)016AB6T1	6	2	3~/230V
EKHBH(X)008AA9WN / EKHBH(X)016AB9WN	9	2	3~/400V
EKHBH(X)008AA9T1 / EKHBH(X)016AB9T1	9	2	3~/230V

OUTDOOR UNIT			ERHQ006AD	ERHQ007AD	ERHQ008AD	ERHQ011AA	ERHQ014AA	ERHQ016AA
Dimensions	HxWxD	mm	735x825x300			1,170x900x320		
Nominal capacity	heating	kW	5.75	6.84	8.43	11.2	14.0	16.0
	cooling	kW	7.20	8.16	8.37	13.9	17.3	17.8
Nominal input	heating	kW	1.26	1.58	2.08	2.46	3.17	3.83
	cooling	kW	2.27	2.78	2.97	3.79	5.78	6.77
COP			4.56	4.34	4.05	4.55	4.42	4.18
EER			3.17	2.94	2.82	3.67	2.99	2.63
Operation range	heating	°C	-20~25			-20~35		
	cooling	°C	10~43			10~46		
	domestic water	°C	-20~43			-20~43		
Sound power level	heating	dBA	61	61	62	64	64	66
	cooling	dBA	63	63	63	64	66	69
Sound pressure level	heating	dBA	48	48	49	49	51	53
	cooling	dBA	48	48	50	50	52	54
Weight		kg	56			103		
Refrigerant charge	R-410A	kg	1.7			3.7		
Power supply			1~/230V/50Hz			1~/230V/50Hz		
Recommended fuses		A	20			32		

Measuring conditions EKHBH(X)008AA: Heating Ta DB/WB 7°C/6°C - LWC 35°C (DT=5°C) - Cooling Ta 35°C - LWE18°C (DT=5°C)
Measuring conditions EKHBH(X)016AB: Heating Ta DB/WB 7°C/6°C - LWC 35°C (DT=5°C) - Cooling Ta 35°C - LWE18°C (DT=5°C)

DOMESTIC HOT WATER TANK		EKHWS150B3V3	EKHWS200B3V3	EKHWS300B3V3	EKHWS200B3Z2	EKHWS300B3Z2
Water volume	l	150	200	300	200	300
Max.water temperature	°C	85				
Height	mm	900	1,150	1,600	1,150	1,600
Diameter	mm	580				
Booster heater	kW	3				
Power supply		1~/230V/50Hz			2~/400V/50Hz	
Material inside tank		Stainless steel (DIN 1.4521)				
Material outside casing		Epoxy-coated mild steel				
Colour		Neutral white				
Empty weight	kg	37	45	59	45	59

		EKHWE150A3V3	EKHWE200A3V3	EKHWE300A3V3	EKHWE200A3Z2	EKHWE300A3Z2	EKHWET150A3V3
Mounting		Floor					Wall
Water volume	l	150	200	300	200	300	150
Max.water temperature	°C	75					
Height	mm	1,205	1,580	1,572	1,580	1,572	1,205
Diameter	mm	545	545	660	545	660	545
Booster heater	kW	3					
Power supply		1~/230V/50Hz			2~/400V/50Hz		1~/230V/50Hz
Material inside tank		Enamel coated steel acc. (DIN4753TL2)					
Material outside casing		Epoxy coated steel					
Colour		Natural white					
Empty weight	kg	80	104	140	104	140	82

SOLAR KIT			EKSOLHWAV1
Dimensions	HxWxD	mm	770x305x270
Heat exchanger	pressure drop	kPA	21.5
	max.inlet temp	°C	110
	heat exchange	W/K	1,400
Ambient temperature	max.	°C	35
	min.	°C	1
Power supply			1~/220-240V/50Hz
Power supply intake			indoor unit

DAIKIN, YOUR RELIABLE PARTNER

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

HIGH-QUALITY, INNOVATIVE PRODUCTS

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

A CLEAN ENVIRONMENT

When you bring a Daikin product into your home, you are also making a significant contribution to the environment. In producing your comfort system, we strive for sustainable energy consumption, product recycling and waste reduction. Daikin rigorously applies the principles of 'eco-design', thus restricting the use of materials that are harmful to our environment.

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In all of us, a green heart

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

DAIKIN EUROPE N.V.

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

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

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

Daikin Europe N.V. participates in the Eurovent Certification Programme for Air Conditioners (AC), Liquid Chilling Packages (LCP) and Fan Coil Units (FC); the certified data of certified models are listed in the Eurovent Directory. Multi units are Eurovent certified for combinations up to 2 indoor units.

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