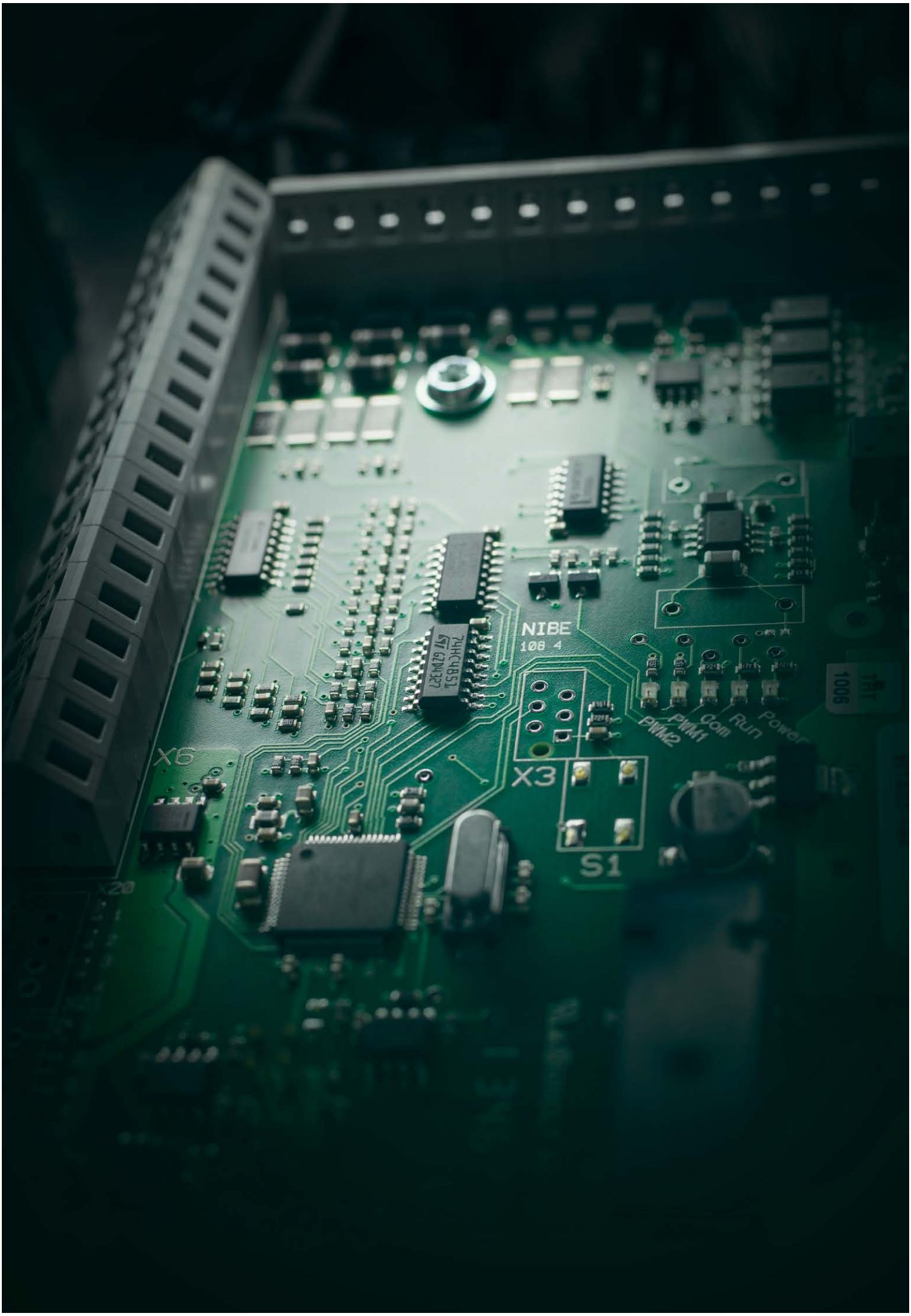
NIBE

NIBE Ground source

A NEW GENERATION OF HEAT PUMPS


NIBE
X6
X3
S1
PWM1
PWM2
Run
Power

UNDERGROUND SOLAR HEAT – A VAST RESERVE OF ENERGY JUST WAITING TO BE TAPPED!

Look out of your window and what do you see? The street? The house opposite? The trees and fields? What we at NIBE see is a free source of energy – the ground!

With the aid of a ground source heat pump, solar energy stored in the ground can be collected and used to heat your home. Here's how.

Warmth builds up underground from the first days of spring when the surface of the earth starts to thaw, to high summer, when the rays of the midday sun penetrate deep down into the ground. By the time the autumn leaves are falling, there's enough energy stored in the ground to heat up your house throughout the coldest winter. A heat pump captures and upgrades this naturally occurring warmth, so even if the summer is wet and cool, it can still provide enough energy to maintain a comfortable indoor temperature.

If at any point it gets too hot inside your house, the same system can be used for cooling. Drawing on the lower temperature underground (between 4 and 12 degrees) passive cooling also exploits nature's own resources – simply for cooling instead of heating.

It's amazing, but true. We know, because we've already been using heat pump technology in Sweden for over 30 years.

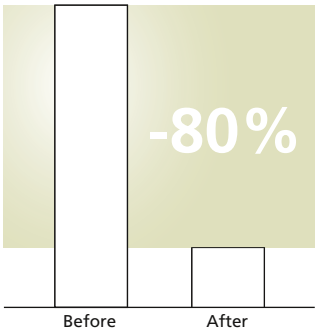
WHY CHOOSE A GROUND SOURCE HEAT PUMP?

You save money

Installing a ground source heat pump from NIBE can lead to a reduction in energy consumption of up to 80%*. The reason for this is that a ground source heat pump uses the ground, surface soil or nearby lake as its main energy source, and all these kinds of energy are free of charge.

Although the heat pump doesn't pay for itself in the first month, you will notice the financial benefits right away because your heating bills will be so much lower.

Moreover, the efficiency of NIBE's latest generation of ground source heat pumps (they have an especially high operating range) positively impacts the speed with which you recover your investment.



Enjoy a dramatic reduction in energy consumption and up to 80% off your heating bills when you install a NIBE ground source heat pump!

Efficient, safe and problem-free heating and hot water at a fraction of the alternative cost and a fraction of the environmental impact.

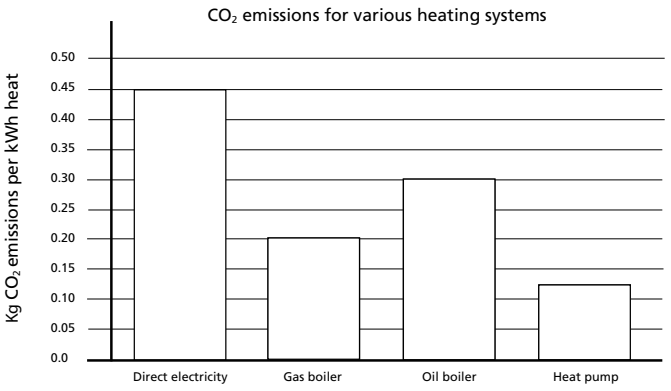
You reduce your carbon footprint

The second reason for choosing a NIBE ground source heat pump is that it's so environmentally-friendly. By merely storing and converting solar energy from the ground to heat your home and hot water, a ground source heat pump leads to much lower CO_2 emissions than a traditional fossil-fuel based heating system.

The UK government offers subsidies to homeowners to switch from fossil fuel based heating to a more modern, renewable source of energy. Since ground source heat pumps are now officially classified as renewable energy, there couldn't be a better time to change!

Consider this

If all the approximately 1 million new houses built in Europe installed heat pumps, by 2016, we would be emitting about 3 600 000 tonnes less CO_2 each year. That's the equivalent of taking about a million cars off the road!



* compared to direct electricity.

FOUR KINDS OF GROUND SOURCE ENERGY

The term "ground source" covers four different heat sources: rock, surface soil, ground water and lake. The one that suits your location best is determined by factors such as the building's energy needs, your current heating system and the kind of terrain your house stands upon. Your local NIBE installer will be able to offer advice about which one is most appropriate for your home.

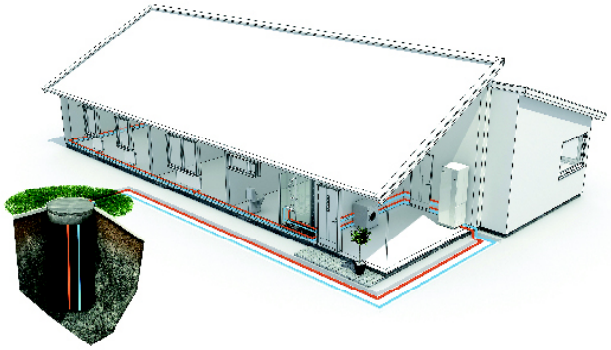
In all four cases, the heat pump concentrates the stored energy from one of these sources in such a way as to provide the hot water for radiators, underfloor heating, baths and showers.

Rock – using a ground probe

Ideal for refurbishment or adaptation from a fossil fuel based heating system.

In the lower subsoil of the so-called "near-surface geothermal layer" lies a heat source with an almost constant temperature that can be utilised all year round. The heat pump collects stored solar energy from a collector in a hole drilled into the rock. The depth of the hole can vary between 90 – 200 metres, depending on the size of heat pump selected and on local building regulations.

This type of system can be used for all possible building types, large or small, public or private. It requires little space and the ground probe can be drilled in the smallest of gardens.

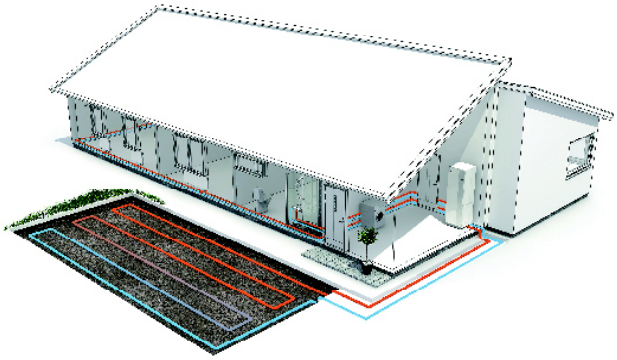


Surface soil – using a surface collector

Cost-effective energy collection.

During the summer, solar heat is stored in the soil. This is either directly absorbed as insulation or as heat from rain and the air from the near-surface layer of the soil. The heat pump collects this stored solar energy from a buried collector. That is, a hose filled with anti-freeze, and buried at a depth of about 1 metre, the length of the hose varies between 250 and 400 metres, depending on the size of heat pump selected.

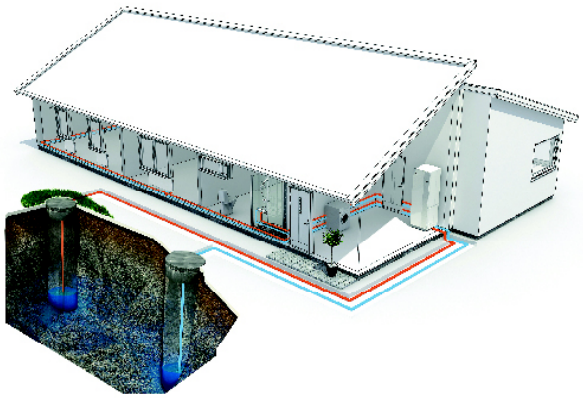
Using this energy for heating is a cost effective method. The highest yield can be obtained from soil with a high water content.



Ground water

A viable energy source for any building where ground water is easily accessible.

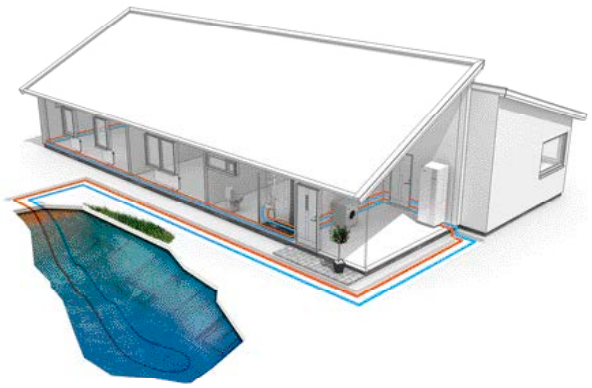
Ground water can also be utilised as a heat source since it has a temperature of between 4 and 12°C all-year round. The heat pump collects stored solar energy from the ground water. Normally, there is one well for drawing up water and one for returning it.



Lake collector

Cost-effective installation for lakeside homes.

If your home is built beside a water source such as a lake, heat from the lake water can be extracted using a surface soil collector anchored to the bottom of the lake.



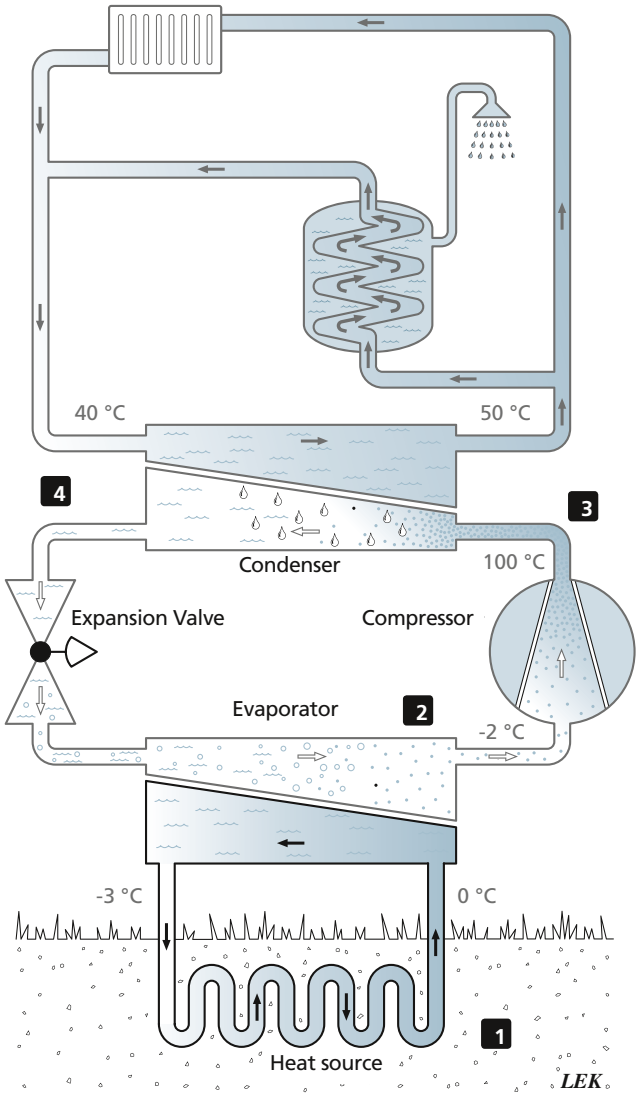
HOW DO GROUND SOURCE HEAT PUMPS WORK?

The earth absorbs and stores heat from the sun year after year, providing us with a constant source of naturally renewed energy. Just a few feet under the ground, there is a fairly constant average temperature of 4°C to 12°C. This trapped energy represents a vast reserve of low grade heat waiting to be tapped.

The ground source heat pump gathers heat from the solar energy stored underground, either using collectors buried at a shallow depth, or from boreholes which are drilled deeper underground.

The heat is transferred from the ground to the heat pump using a mixture of water and an environmentally-friendly anti-freeze solution. It circulates through the closed loop, absorbing thermal energy from the earth and carrying it to the heat pump.

The refrigerant circulates in the heat pump and thus the heat from the ground is retained and converted into high-grade heat to be released into your home via an underfloor heating system, water based radiators and into your hot water tank.



1. Using a hose filled with liquid, known as a collector, you can bring up solar energy stored deep down in the rock, at the bottom of the lake or a metre or so beneath your lawn. The liquid in the collector circulates and is heated up by the stored solar heat down in the ground or in the lake.

2. When the liquid passes up into the heat pump, it meets another closed system. This contains a refrigerant that can turn into gas at a very low temperature.

3. Under high pressure, a compressor considerably increases the temperature of the refrigerant. Then, using a condenser, the heat is transferred to the water-based heating system in the house.

4. Meanwhile, the refrigerant reverts to liquid form, ready to turn into gas once more and to collect new heat energy.

THE DILEMMA:

Home owners, architects and builders are looking for more environmentally friendly ways to regulate the indoor climate.

There is an obvious trend away from natural gas and oil based solutions due to the pressures of cost and availability of fossil fuels. Long term planning is called for.

The pressure is on from governments and societies to behave in a more environmentally responsible way, specifically in the choice of heating systems for buildings.

NIBE'S ANSWER:

When compared to alternative heating solutions, heat pumps have a very low environmental impact.

Designed for domestic use, NIBE ground source heat pumps are easy to install, operate and maintain. They are built to last and can be driven by a variety of different energy sources, depending on availability and price.

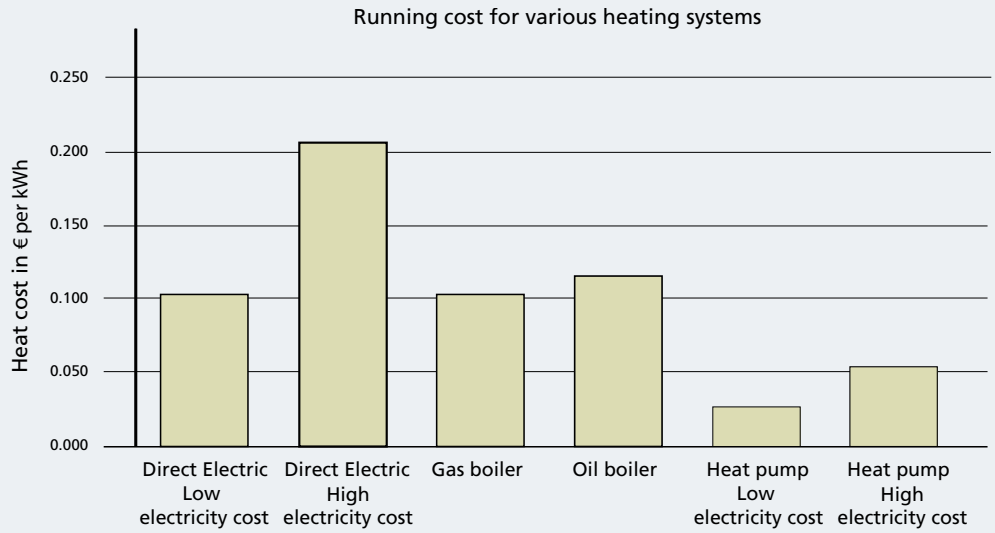
There is no combustion process involved in the operation of a NIBE ground source heat pump. It merely upgrades energy from the ground, surface soil or lakewater near your home. Ground source heat pumps are now officially classified as a renewable energy source.

WHAT IMPACT DOES A NIBE GROUND SOURCE HEAT PUMP HAVE ON YOUR ENERGY CONSUMPTION?

It reduces energy consumption for heating and hot water by up to 80%!

Thanks to a series of efficiency-enhancing innovations, such as low energy circulation pumps (class A), an especially well-insulated hot water tank and indeed, to the design of the tank itself, NIBE's ground source heat pumps offer a particularly high Seasonal Performance Factor (SPF). That is, their average performance calculated over an entire year, taking into account the changing weather conditions and the household's fluctuating energy needs.

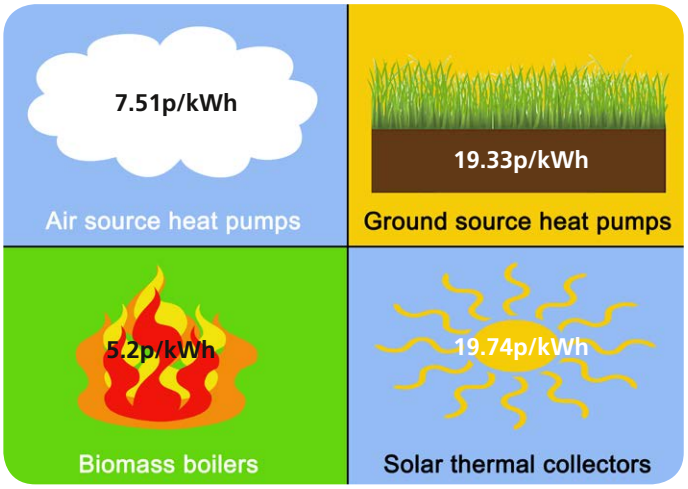
A heat pump's efficiency is often given as COP (coefficient of performance) i.e. the amount of heat it produces in relation to the amount of electricity needed to run it. However, to give a complete picture of the efficiency of our new generation of heat pumps, we prefer to use SPF.



WHAT IS THE RENEWABLE HEAT INCENTIVE?

Get paid to generate heat
The Renewable Heat Incentive (RHI) is a government-backed financial incentive scheme designed to encourage UK homes to swap to renewable heating systems. Under the RHI, heat pump, biomass or solar thermal system owners are rewarded for the renewable heat they generate over a seven-year period.

How much could you earn?
How much you could earn depends on the technology you choose and the tariffs set out by the government (measured in pence per kilowatt-hour for the renewable heat produced).



Payment calculations are based on an estimate of how much heat your home will require from a renewable heating system and how it will perform once installed. As well as the technology itself, performance will also depend on other factors, such as insulation levels and the heat emitters your system uses (for example, low-temperature underfloor heating is likely to be more efficient than traditional radiators). If you received a grant towards the cost of your system under the Renewable Heat Premium Payment (RHPP), this will be deducted from your RHI payments.

Before applying for RHI payments you will need an up-to-date Energy Performance Certificate (EPC), which shows how efficient your property is. If your EPC recommends loft and cavity wall insulation it must be installed, and the EPC replaced prior to applying. There are some circumstances under which you may be exempt from this requirement for which you must submit evidence

Example
A NIBE ground source heat pump fitted in a typical four-bedroom house could generate annual payments of around £3,500 (or £24,000 over the seven-year scheme)*

Who is eligible?
Anyone who retrofits an air source or ground source heat pump, biomass boiler or solar thermal system in a single domestic property is eligible for RHI payments (whether they are an owner-occupier or private/social landlord). Self-build properties are the only new-build installations that are eligible.

To qualify for RHI payments, your system needs to have been fitted by an installer who has the right training and accreditation under the Microgeneration Certification Scheme (MCS). Opting for a NIBE VIP installer gives you complete peace of mind, as not only are all NIBE VIPs fully MCS-accredited, they can also offer an extended warranty on certain products – so it pays to make sure you deal with the experts.

References

**Actual figure £3,526.37 a year (£24,684.60 in total over seven-year scheme). Based on a total annual energy demand of 25,000kWh, system coefficient of performance (SCOP) of 3.7 and ground source heat pump tariff payments of 19.33p/kWh*

NIBE GROUND SOURCE HEAT PUMPS & ACCESSORIES

THE NEW GENERATION OF NIBE GROUND SOURCE HEAT PUMPS

The principle behind ground source heating is basically very simple, but at NIBE we have developed the technology over the years, leading to increasingly sophisticated and advanced products.

Our new generation of ground source heat pumps is packed with sophisticated technology, but at the same time incredibly simple to install and operate. Designed for connection to a heat distribution system such as radiators, convectors or underfloor heating, these new heat pumps offer astonishing savings and big environmental benefits.

Now, even more efficient!

NIBE's new heat pumps achieve a reduction of up to 15% in energy consumption compared to earlier models. This overall figure takes into account factors such as increased compressor performance savings from the use of low energy circulation pumps and hot water tank insulation. Further reducing CO_2 emissions as well as energy costs, this efficiency gain is good news for home-owners and the environment!

Colour display

With the arrival of the new generation of heat pumps, the concept of user-friendliness has reached a whole new level. A large, easy-to-read multicolour display features clear information about status, operation time and all temperatures in the heat pump; an easily navigated control unit enables users to get the best performance out of the heat pump and maintain a comfortable indoor temperature at all times.

User convenience

You need never run out of hot water again! Equipped with a high output heating coil and a 180-litre tank, any of our heat pumps which feature an integrated water heater now give you even more efficient water heating and rapid replenishment of hot water supplies.

You can save even more energy by scheduling your heat pump to provide for the varying energy needs of your household, on a daily, weekly or longer term basis. What's more, our new heat pumps are so quiet you can hardly hear them!

User-friendliness

Our new generation of heat pumps have an intuitive interface, which benefits both the end user and the installer. For example, an automatically activated guide leads you through the set-up process quickly and correctly. There is a help function where you can turn for more information about each function, and an alarm which highlights problems and suggests how to solve them.

An easily removed compressor module and a clearly organised internal design facilitate installation and service. The inclusion of USB ports make software updates and operating data downloads quick and simple to perform.

Multi-purpose

With the addition of various accessories, our new heat pumps can do much more than merely heat your home and hot water. For example, they can be used to cool your home in summer, ventilate it cost-effectively, or even heat your swimming pool. The relevant accessories are dimensioned to fit neatly together, giving the appearance of a single streamlined system. And since all accessories are controlled via the heat pump, you only have to learn to use one operating system. Find out more about accessories on page 22.

FREEDOM – ANYWHERE, ANY TIME

NIBE UPLINK™

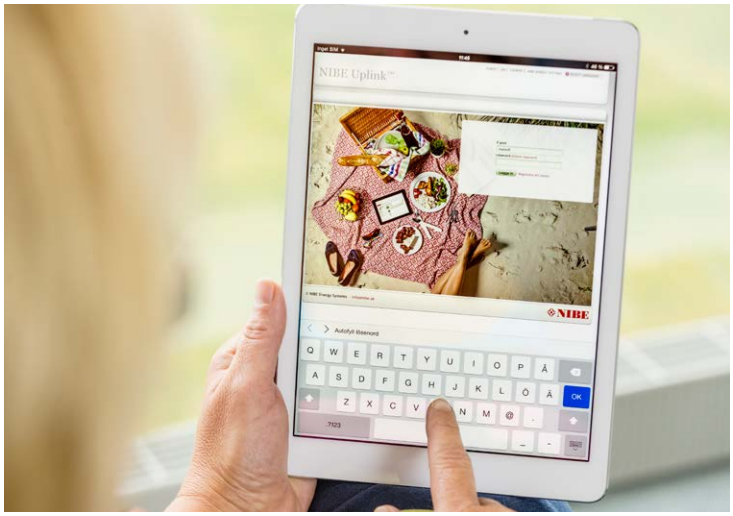
Using the Internet and NIBE Uplink you can get a quick overview and the present status of your heat pump and the heating in your property. You get a good overall view where you can follow and control your heating and hot water production. If your system is affected by an operational disturbance you receive an alert via e-mail that allows you to react quickly.

NIBE Uplink also gives you the opportunity to control comfort in your property no matter where you are. **We call it NIBE freedom.**

- NIBE introducing a new, efficient tool that gives you quick and easy control over your property's heat pump – wherever you are.
- A web interface over the Internet offers you an instant view of e.g the temperature and current status of the heat pump in your property.
- Provides the benefit of external monitoring for several properties at the same time.
- Clear, easy way of monitoring and controlling heating and water temperatures for maximum comfort.
- In the unlikely event of a system malfunction you receive an alarm directly in your mail, allowing you to respond in the fastest possible time.
- Simple installation with a "click" of an ethernet cable.
- Provides logging of heat pump parametres presented in a user-friendly history chart.

New

- **API functionality for external integration of e.g home management systems and BMS**
- **NIBE Uplink app for compatible smart phones**

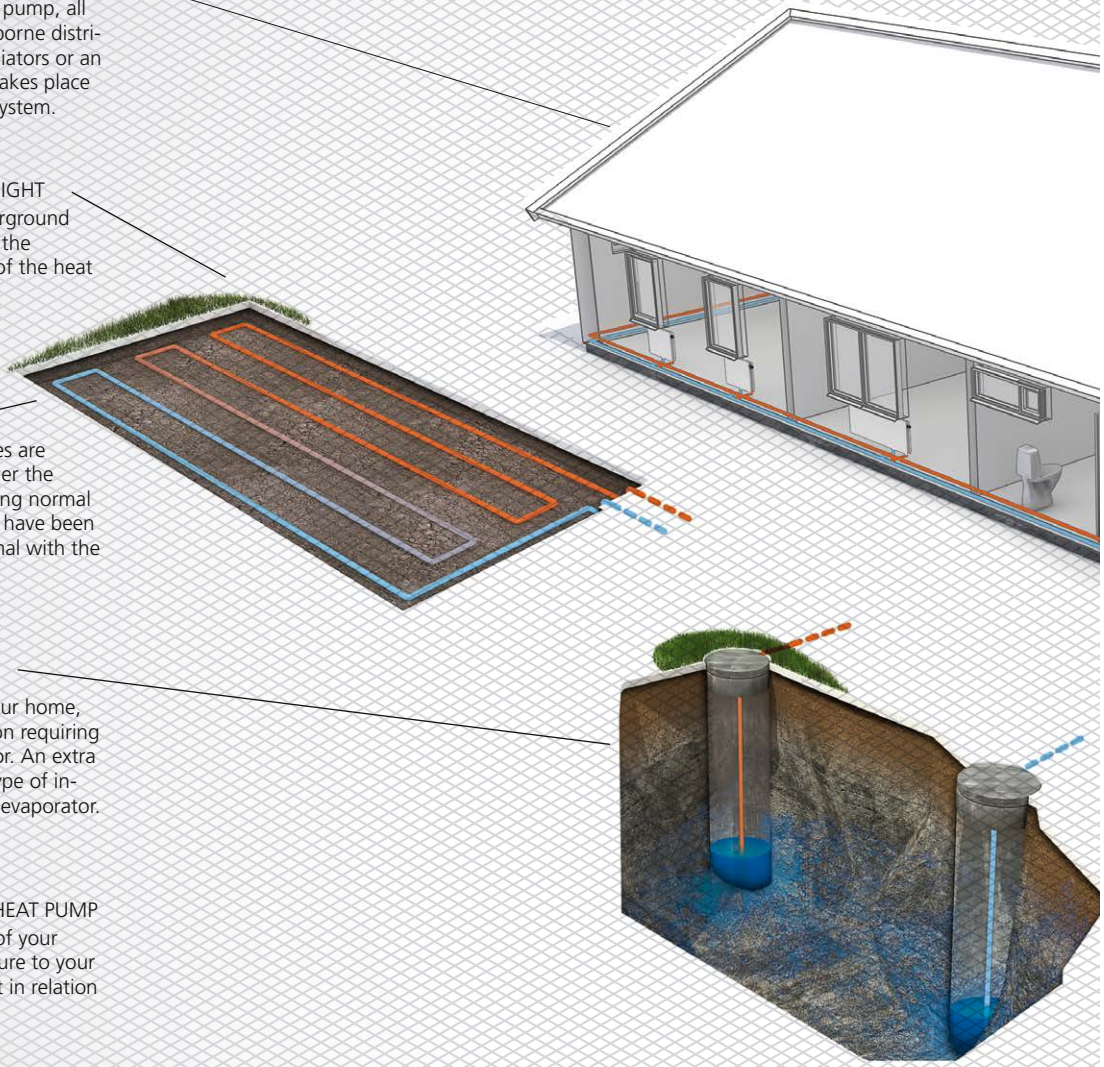


NIBE GROUND SOURCE HEAT PUMP INSTALLED IN YOUR HOME

Four functions in one:
HEATING COOLING, DOMESTIC HOT WATER AND VENTILATION WITH ONE HEAT PUMP
Using your NIBE ground source heat pump, all these functions are possible. Water-borne distribution of heating takes place via radiators or an underfloor heating system; cooling takes place via fancoils or the same underfloor system.

Zero visual impact:
ALL OUTDOOR ELEMENTS OUT OF SIGHT
Since the bore hole, surface or underground water collectors are hidden beneath the ground, there is no visible evidence of the heat pump in your garden.

Surface soil collector:
TAKE ADVANTAGE OF A LARGER GARDEN TO COLLECT ALL THE ENERGY YOU NEED
With a surface soil collector, the pipes are buried approximately one metre under the ground, which is simply achieved using normal digging equipment. When the pipes have been laid, your garden is returned to normal with the system neatly hidden underground.

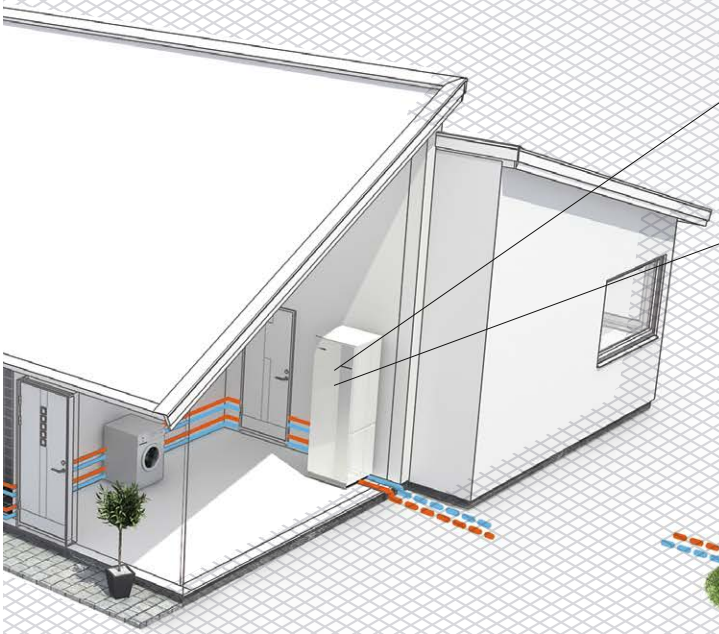


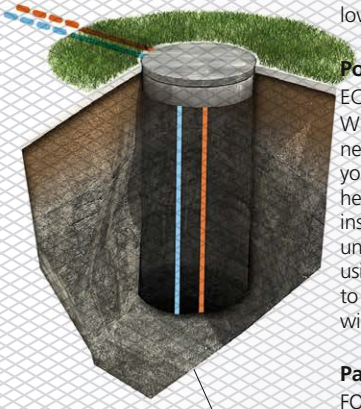
Ground water collector:
SHALLOW DRILLING ON LAND WITH GROUND WATER BENEATH IT
If there is a water source beneath your home, this can be a cost-effective installation requiring less deep drilling than a rock collector. An extra exchanger is recommended in this type of installation to prevent clogging of the evaporator.

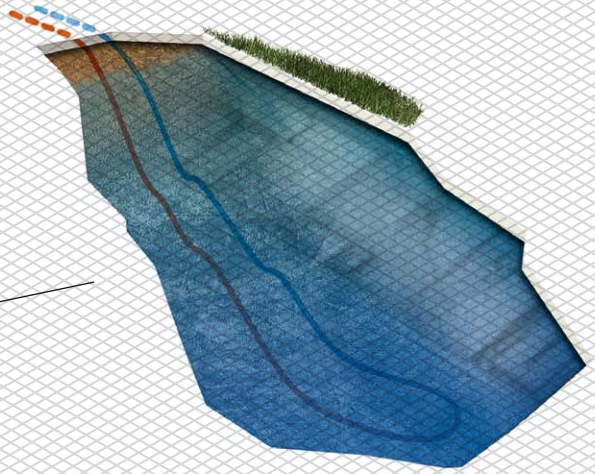
Outdoor sensor:
MINIMISES WASTE AND ENSURES ECONOMICAL OPERATION OF THE HEAT PUMP
A sensor placed on an exterior wall of your house reports the outdoor temperature to your heat pump so that it can vary output in relation to need.

No-freeze transport pipes:
FOR SAFE AND RELIABLE OPERATION ALL YEAR ROUND
The pipes for transporting heat from the energy source to your home contain a solution of water mixed with anti-freeze. This means that even in the depths of winter, you can rest assured the heat pump will keep doing its job!

Lake collector:
COST-EFFECTIVE INSTALLATION FOR LAKESIDE HOMES
If there is a water source such as a lake beside your home, it is possible to employ a surface soil collector anchored to the bottom of the lake.







Indoor unit:
NEUTRAL APPEARANCE,
ADAPTED TO ANY INTERIOR
An attractive but discreet design makes our ground source heat pumps easy to place in your utility room or cellar. Since the design is pleasing to the eye, it can even be positioned in a more visible area such as a hallway.

Compatibility:
CONNECTS EASILY WITH
OTHER ENERGY SOURCES
When you need an additional energy source, your NIBE heat pump can be hooked up to e.g. an existing boiler. Note that complementing supplies with a green energy source such as wind power would result in a system that's almost emission free.

Ventilation:
INCREASE ENERGY SAVINGS
Enjoy the benefits of good ventilation and lower heating bills by adding an FLM module to your heat pump. It captures the heat from the stale air exiting your home and feeds it back into the heat collection system. The FLM's low energy fan consumes very little electricity.

Pool heating:
ECONOMICAL POOL HEATING
When the weather is warm, and you do not need the heat pump's full capacity to supply your home's energy needs, why not use it to heat an outdoor swimming pool economically instead? The accessory NIBE Pool 40 is a control unit for this function. If you are planning on using the pump to heat up your pool, remember to inform your supplier from the start, as this will influence the size of collector needed.

Passive cooling:
FOR LOW ENERGY, LOW COST COOLING
The same system can be used to cool your home. Passive cooling circulates fluid that has been cooled underground into your underfloor system or fancoils, lowering the indoor temperature in the most natural, energy-efficient way.

Bore hole:
COLLECT ALL THE ENERGY YOU NEED, EVEN ON A SMALL PLOT OF LAND
By means of one or several bore holes, it is possible to collect enough energy from the bedrock to satisfy the needs of any home. This is a one-off investment since the same borehole can be used even if you decide to change the pump at some point in the future.

WHAT MAKES THE NEW GENERATION OF NIBE GROUND SOURCE HEAT PUMPS SO EFFICIENT AND USER-FRIENDLY?

Below, we've highlighted some of the key features of our best seller, the NIBE F1245 ground source heat pump. Thanks to a combination of advanced engineering and numerous efficiency enhancing features, the NIBE F1245 gives you unrivalled annual average energy savings and makes it possible to maintain a comfortable indoor climate all year round, regardless of the weather.

What's more, you don't need to be a technical genius to make it work for you. A large, easy-to-read multicolour display gives everyone the chance to maximize the energy saving potential of this exciting green technology!

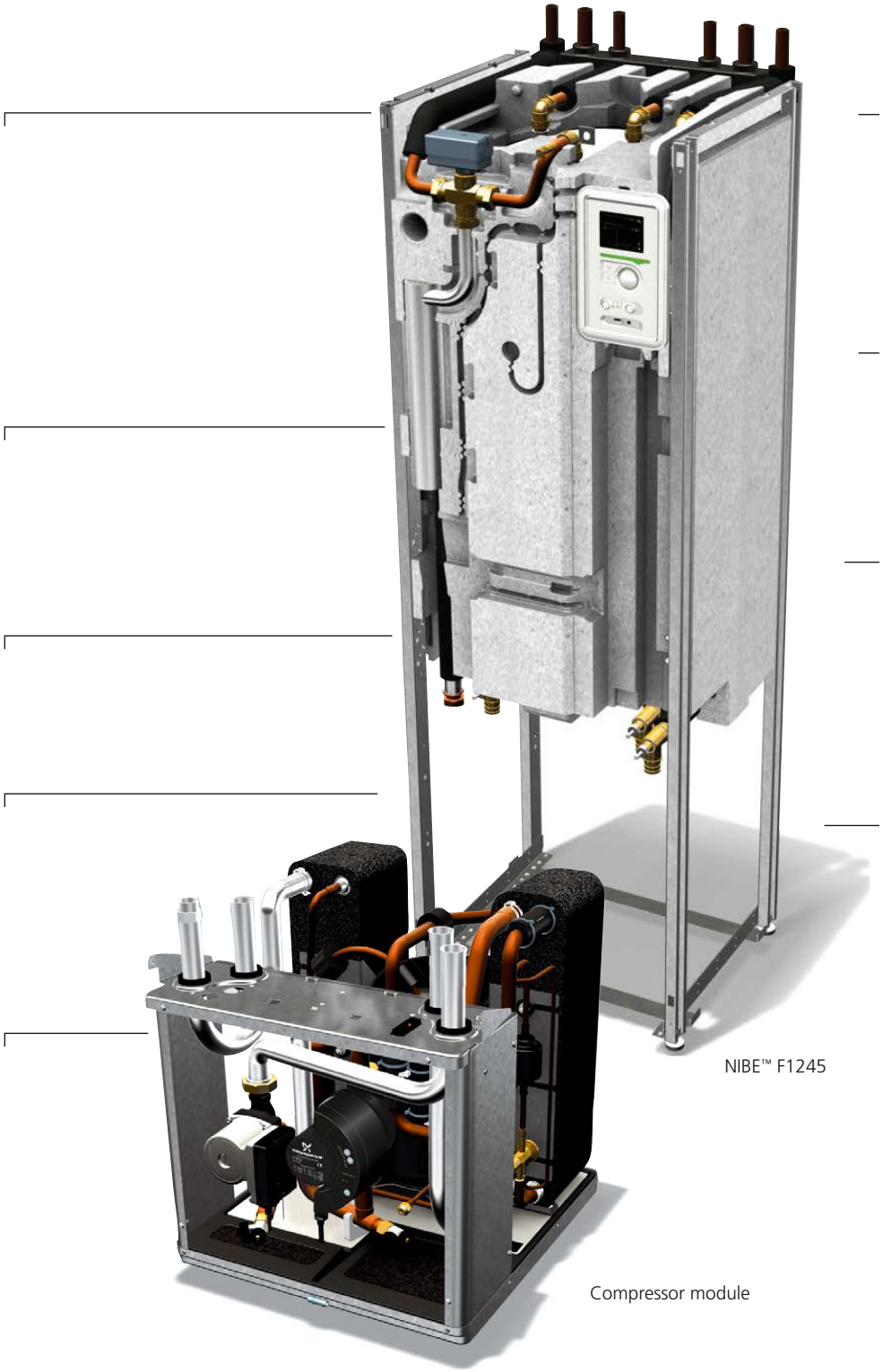
Modular design
FOR EASY ADDITION OF ACCESSORIES
This heat pump and its accessories are designed to be placed together and create a streamlined appearance with any unsightly piping neatly tucked away. Whether you choose a heat pump with integrated hot water tank and add-on ventilation unit, or combine a heat pump with a standalone hot water tank, the overall effect is that of a single, neat system.

Design of the hot water tank
FOR ECONOMICAL AND EFFICIENT HOT WATER PRODUCTION
Water is heated using heating coils placed *inside* the tank, making it possible to produce twice as much hot water in the same amount of time.

Insulation of the hot water tank
MINIMISES HEAT LOSS AND SAVES MONEY
An extra thick and efficient layer of insulating material made of Neopore retains the heat inside the tank, which in turn saves you money.

Low energy circulation pumps
REDUCES ENERGY CONSUMPTION AND COSTS
Steered by software in the heat pump, the circulation pumps can run faster or slower, depending on the building's energy requirements and the outdoor temperature. This is highly economical as it means only the correct amount of energy is produced.

Removeable compressor module
FACILITATES TRANSPORT, INSTALLATION AND MAINTENANCE
The compressor module can be removed quickly and simply from the heat pump. This makes it a far less heavy and cumbersome item to carry and install. Moreover, should the compressor module require servicing it can be removed and serviced independently of the heat pump.



NIBE™ F1245

Compressor module

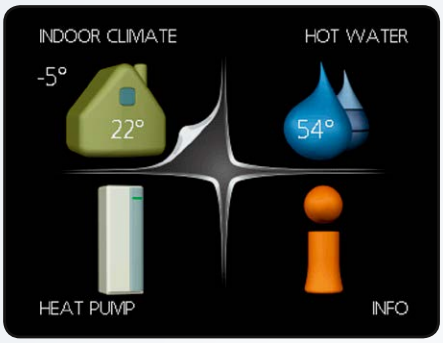
Well structured interior
REDUCING THE NEED FOR A USER MANUAL
Our heat pumps come with a user manual handily positioned in a special pocket inside the aluminium door. However, installers will find that the inside of the heat pump is so neatly and clearly organised that they rarely need to refer to the manual.

USB ports
FOR UPLOADING AND DOWNLOADING DATA
Having USB ports gives several advantages. For example, end users can download historic operating data onto a memory stick and give it to their local NIBE specialist, instead of arranging a home visit.

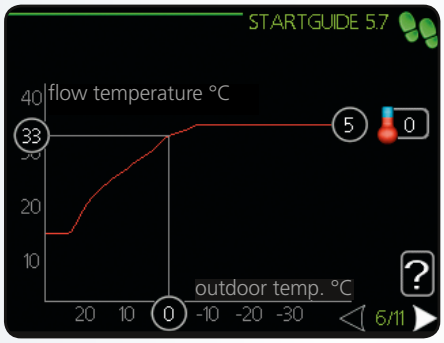
Exterior design
AN ATTRACTIVE PIECE OF EQUIPMENT IN YOUR HOME
The main body of the heat pump is plain white, which means it fits into your cellar or utility room without any problem. The F1245 also has an attractive, brushed aluminium flap door with a window through which the digital display is visible.

Integrated circulation pumps
KEEPS YOUR HEAT PUMP QUIET!
The noise level of our ground source heat pumps have been further reduced by placing the circulation pumps inside the compressor module. The result is an almost silent operation.

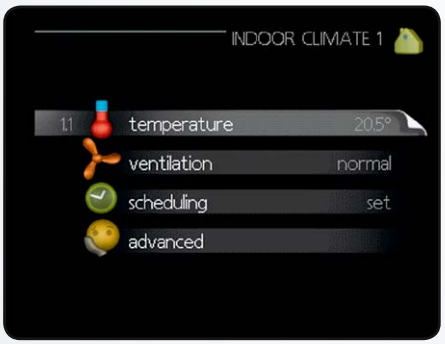
THE DISPLAY



Colour display
FOR A QUICK OVERVIEW OF THE HEAT PUMP'S OPERATION
The unique colour display shows four icons representing the house temperature, the heat pump, the hot water and "information". You can choose to see selected icons when the aluminium door of the heat pump is closed.



Start-up guide
FOR EASY COMMISSIONING
The start-up guide on the display is automatically activated during installation. It poses a series of questions such as which language should be used and which, if any, accessories will be hooked up to the heat pump. In this way, the installer is guided quickly and correctly through the set-up process.



User interface
MAKING IT EASY TO GET THE MOST OUT OF YOUR HEAT PUMP
Open the aluminium door and select which one of the four areas you want to view in more depth. With just three commands to choose from – select, return and scroll – navigation could not be more straight forward. Yet behind this simple exterior lies a sophisticated control system, enabling you to adjust the climate in your home, boost hot water capacity, switch to economy mode before a weekend away …and much more besides.

NIBE GROUND SOURCE PRODUCT RANGE

NIBE™ F1145

One of a new generation of heat pumps, designed to supply your home with inexpensive and environmentally friendly heating. The unit features circulation pumps and a control system and the heat production is both safe and economical. Connect to an optional low temperature heat distribution system such as radiators, convectors or underfloor heating. Add accessories, such as a hot water heater, passive cooling, ventilation recovery, pool and other heating systems.

The F1145 has no integrated water heater, which is an advantage if there is a low ceiling or if a larger volume of hot water is required. Suitable for use with NIBE VPB 200.

A control unit helps you maintain a comfortable indoor climate, both cost-effectively and safely. Clear information about status, operation time and all temperatures in the heat pump is shown on the large and easy-to-read display.

NIBE F1145

Sizes	(1-phase) 5, 8, 10, 12 kW (3-phase) 15, 17 kW
Integrated water heater 180 litres	No
Delivery temperature	65°C
Soft starter	Yes
Immersion heater	Yes
Height/ Width/ Depth	1500/ 600/ 620 mm

NIBE™ F1245

One of a new generation of heat pumps, with a 180L stainless steel hot water cylinder designed to supply your home with inexpensive and environmentally friendly heating and cooling. The unit features an integrated immersion heater, circulation pumps and a control system and the heat production is both safe and economical. Connect to an optional low temperature heat distribution system such as radiators, convectors or underfloor heating. Add accessories, such as extra hot water heater, ventilation recovery, underfloor heating, pool and/or solar panels and other heating systems.

A control unit helps you maintain a comfortable indoor climate, both cost-effectively and safely. Clear information about status, operation time and all temperatures in the heat pump is shown on the large and easy-to-read display.

NIBE F1245

Sizes	(1-phase) 5, 8, 10, 12 kW
Integrated water heater 180 litres	Yes
Delivery temperature	65°C
Soft starter	Yes
Immersion heater	Yes
Height/ Width/ Depth	1800/ 600/ 620 mm

APPROVED PRODUCT

MCS

FIRE GLOBAL CERTIFICATION

Certificate number: MCS HP0003
Heat pumps

NIBE™ F1345

One of a new generation of heat pumps, designed to supply your home with inexpensive and environmentally friendly heating. Connect to an optional low temperature heat distribution system such as radiators, convectors or underfloor heating. Add accessories, such as a hot water heater, passive cooling, ventilation recovery, pool and other heating systems.

With its two large scroll compressors, NIBE F1345 is the ideal ground source heat pump for large residential and commercial installations and other buildings with a large heat demand. The intelligent system controls both compressors as necessary to give better power control, less wear and greater operational ability.

The new F1345 is more flexible than ever and with its advanced control system it can be adapted to several system solutions. In systems with up to 9 heat pumps and with a wide range of accessories e.g. for control of oil, gas, pellet fired or electric boilers, you find the full flexibility for your installation.

NIBE F1345 is equipped with a multicolour display, multi languages support and simply upgradable software via the built in USB port.

NIBE F1345	
Sizes	24, 30, 40, 60 kW
Integrated water heater	No
Delivery temperature	65°C
Soft starter included	Yes
Immersion heater	Accessory
Hight/Width/Depth	1800/600/620 mm

WHY ACCESSORIES?

A NIBE heat pump is not just for heating and hot water. With the addition of various accessories, our new heat pumps can do much more than merely heat your home and hot water. For example, they can be used to cool your home in summer, ventilate it cost-effectively, or even heat your swimming pool. The relevant accessories are dimensioned to fit neatly together, giving the appearance of a single streamlined system.

And since all accessories are controlled via the heat pump, you only have to learn to use one operating system.

NIBE VPB 300 water heater with NIBE F1145 and exhaust air module FLM.

HEAT PUMP	**F1145**	**F1245**	**F1345**
Refrigerant	R407C	R407C	R407C/R410a
Soft starter	Yes	Yes	Yes
Integrated water heater	–	Yes	–
Immersion heater	Yes	Yes	Accessory
Flow temperature	70°*	70°*	65°
ACCESSORY			
SMS 40 GSM remote control	Yes	Yes	Yes
FLM exhaust air module	Yes	Yes	Yes
Pool heating	Yes	Yes	Yes
RMU 40 control module	Yes	Yes	Yes
Extra heating circuit	Yes	Yes	Yes
Passive / active cooling	Yes	Yes	Yes
Solar heating	Yes	Yes	Yes
Additional heat	Yes	Yes	Yes
Pump for hot water circulation	Yes	Yes	Yes
Ground water pump	Yes	Yes	Yes

* The compressor provides a flow temperature up to 65 °C, the remaining is obtained using the additional heat. Max return temperature is 55 °C

FURTHER USES FOR YOUR HEAT PUMP

Recycle heat from "used" air

NIBE™ FLM

The addition of this exhaust air module further reduces your heating bills.

Developed to work in conjunction with NIBE ground source heat pumps the FLM module recycles old, stale air from the house, extracts the energy from it and reuses it to heat new, clean air from outside. Air quality is improved while warmth is maintained – all at no extra cost!

NIBE FLM also has an integrated DC fan, so you can adjust the fan's speed and thus vary the degree of ventilation required. It can be fitted directly to the heat pump or hung up on the wall.

Enjoy extra hot water

NIBE™ VPB, NIBE™ VPBS, NIBE™ VPAS, NIBE™ UKV

If your heat pump does not have a built-in water heater, or if your household consumes a particularly large quantity of hot water, a separate storage tank can be connected to the system. It provides the hot water you need, or boosts the capacity of an existing system.

NIBE VPB is the new generation of accumulator tank. It can be docked in several different ways, e.g. to another heat pump such as the NIBE F1145. VPBS is solar ready and easy to connect to a solar sytem.

NIBE UKV is a surge vessel that is used together with heat pumps to increase the volume of water in the system for more even operation.

Electric boilers

NIBE™ ELK 26, NIBE™ ELK 42

Electric boilers for additional heating for ground-source heat pumps.

Control the heat pump

NIBE™ MODBUS 40

With MODBUS 40 F1145/F1245/1345 can be controlled and monitored by external control systems.

Heat your swimming pool

NIBE™ POOL 40

Using ground source heating to heat the water in your pool saves money and makes those breath-taking icy cold dips a thing of the past!
The NIBE POOL 40 is an accessory that we have developed to make it easy to control the heating of your pool.

Whether you already have a pool or are planning to build one, it's a good idea to tell your heat pump installer about this at the start. That way you can be sure to get the right sized heat pump and bore hole depth that's adequate for the pool's heating requirements.

POOL 40 enables pool heating with NIBE F1145, F1245 and F1345.

Cool your home

NIBE™ HPAC, NIBE™ PCM, NIBE™ PCS 44

A ground source heat pump is not just for heating up your home and hot water. You can also use it to cool your house. There are various ways of doing this. The simplest way is to supplement your heat pump with a fan convector.

The NIBE PCM is a cooling module that makes it possible to receive passive cooling from your heat source.

The NIBE HPAC is a climate switching module that together with F1145, F1245 or F1345 creates a complete climate system – enabling you to both heat and cool your home.

The addition of a convection fan enables the passive cooling function, which is controlled from your heat pump NIBE F1145, F1245 or F1345 with the PCS 44 accessory.

Distribute heat to more than one system

NIBE™ ECS 40, NIBE™ ECS 41

Using the ECS 40 / ECS 41 (for F1145/F1245/F1345) accessory, you can choose to share out the heat from your heat pump to up to four different heating systems. This is the ideal solution if you have, for example, underfloor heating on the ground floor and radiators upstairs.

ECS 40 < 80m^2

ECS 41 > 80m^2

Accessory card for connection and control

NIBE™ AXC 40, NIBE™ AXC 50

This accessory is used to enable connection and control of:

- Mixing valve controlled additional heat
- Pump for hot water circulation
- Groundwater pump

AXC 40 works with ground source heat pumps NIBE F1145 and NIBE F1245. AXC 50 works with F1345.

Solar kit

NIBE™ SOLAR 40, NIBE™ SOLAR 42

NIBE SOLAR enables solar heating with your heat-pump. With additional solar panels and VPAS or VPBS you get a complete system. Works with ground source heat pumps NIBE F1145 and NIBE F1245.

The convenient way to read your heat pump

NIBE™ RMU 40

With this handy remote control unit positioned in your hallway, kitchen (or wherever you want to put it) you can keep in touch with what's happening at the heat pump and change the most common settings remotely. Works with ground source heat pumps NIBE F1145, NIBE F1245 and F1345.

NEW TIMES CALL FOR A NEW APPROACH

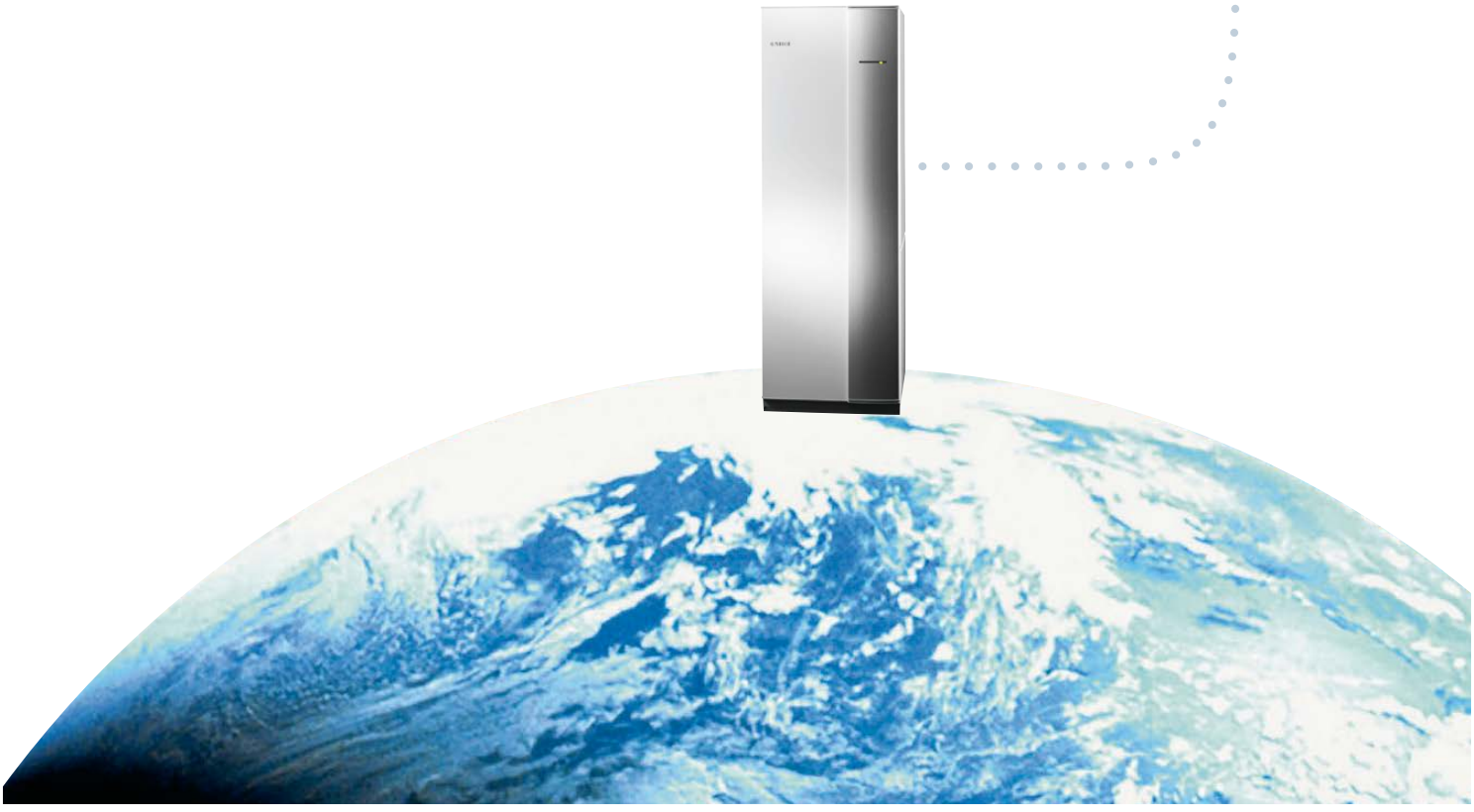
We all know we've got to reduce emissions. The question is how?

"Green" thinking might once have been a luxury, but lately it has become a necessity that none of us can afford to ignore. Increasingly, the reduction of CO_2 emissions is becoming a legal requirement as well as an environmental necessity.

Over 70% of an average home's CO_2 emissions are caused by its heating and hot water systems. In order to reduce this figure, we need to start implementing greener, more sustainable technologies across the board. Only then, will we see a significant reduction in CO_2 emissions.

Meanwhile the prices of traditional energy sources are rising steadily, with the result that more and more people feel inclined to consider alternative, more efficient energy sources.

Now their customers have started demanding a solution, builders, architects and property developers can no longer ignore the need to employ alternative technologies that make better use of the world's energy resources.



START WITH A HEAT PUMP!

Heating your house with a heat pump is the proven best option for the environment.

There are a number of reasons for this

One obvious factor is that a heat pump does not use any combustion process or other energy to generate heat. It simply extracts the heat that already exists in the air, ground or water source, and puts it to use to heat your home. This means lower emissions.

Secondly, in comparison with other heating systems, the amount of electricity needed is relatively low. That's because electricity is not the main energy source, it's only needed to run the heat pump and enable the heat extraction process. While the exact energy saving varies according to what you benchmark against, it generally measures between 60% and 80%.

Another interesting point to consider is that heat pumps, like every manufactured item contains what we call "embedded energy". That is, the energy required to make the product and transport it from the factory to the site where it will be used. By continually improving its own processes, NIBE seeks to minimise the amount of embedded energy in its products; to build and transport them in the most environmentally friendly way.

Once installed in your home, a NIBE heat pump immediately starts to deliver an environmental "payback" in the form of reduced energy consumption and emissions.

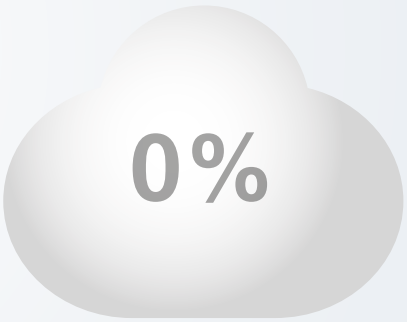
Working towards a zero carbon future

The drive to reduce energy consumption and the impact its use has on the environment is crucial and increasingly important to us all. Why not take a step closer towards a zero carbon future and power your heat pump using a renewable energy source such as wind, solar or hydro energy?

Classified as renewable energy

Some governments and regional authorities offer subsidies to home owners to switch from fossil fuel based heating to more modern, renewable energy source such as wind, solar or hydro power? Since ground source heat pumps are now officially classified as renewable energy, there couldn't be a better time to change!

See www.nibe.eu for more information.



AN INVESTMENT IN THE FUTURE

NIBE heat pumps are ideal for use in a variety of house sizes and their carefully developed control system is designed to work perfectly to provide hot water to either traditional radiators or underfloor heating systems.

More than anything, a NIBE heat pump is an investment in the future. Developers, builders and home owners want to be assured that the technology they purchase today will be relevant and useful for many years to come. Our heat pumps have been designed with the future very much in mind.

Already, legislation is forcing builders and home owners to consider energy use in their properties. NIBE is at the cutting edge of low energy performance and will enable homes to meet energy consumption and emissions targets long after they are built.

CASE 1
BLUE HAZE

Background

Blue Haze is an 80-year-old 2,300 sq ft bungalow in Somerset. A major restoration project saw owners Shaun and Judith Davey completely gut the property and start afresh. Not only did the couple want to transform Blue Haze into their dream home, but a key aim was to make it as energy efficient and economical as possible – and this included replacing their inefficient electric storage heaters with a highly efficient renewable heating system.

Before the project had even begun Shaun Davey knew that he wanted a NIBE heat pump. As well as being renowned for their quality and reliability, with 1.25 acres of land, it made perfect sense for the couple to make the most of their natural surroundings.

Solution

Being an old, draughty property, a great deal of heat (and therefore money) was being lost through poor insulation. Therefore, the Daveys placed huge emphasis on making Blue Haze as airtight as possible, replacing all doors and windows and adding extensive insulation to floors and walls.

Installers RES (Devon) Ltd then specified and installed an 12kW NIBE F1145 ground source heat pump. RES opted for a surface soil collector, which is discreetly buried one metre underground in the back garden. The consistent energy it draws from the earth is then used to heat underfloor heating, and a high-volume NIBE VPB 300 litre cylinder, which effectively services Blue Haze's hot water needs.

Results

Because the property's heat loss is so low, the single-phase 12kW F1145 system is more than sufficient to meet the Daveys' heating needs all-year-round. The heat pump keeps the house at a comfortable temperature, even with the couple using it at less than two thirds of its overall capacity.

As well as qualifying for £2,300 of RHPP vouchers towards the upfront cost, the system will also be eligible for ongoing payments of as much as £2,388 per year, for seven years through the domestic RHI scheme. The couple are so happy with the heat pump, they are even considering greening up their electricity supply with solar PV panels in the near future.

CASE 2
SKYE WINDOW HOUSE INNER HEBRIDES

The background

built in a secluded setting on the Isle of Skye, the Skye Window House is a luxury holiday home boasting floor-to-ceiling windows and impressive coastal views – but its rugged location also means it is subject to some of the UK's most severe climates. When researching an off-grid heating system for the three-bed, two-bath property, the challenge for owner Torsten Mansson was finding a solution that would ensure a comfortable indoor environment and reliable hot water, whatever the outside temperature. After extensive research into renewable heating technologies, Torsten was keen to opt for a NIBE heat pump system, and approached local specialist and NIBE VIP installer Lochaber Renewables for advice.

Solution

Graham Moss, director at Lochaber Renewables, met with Torsten to discuss the unique requirements of the project, and went on to specify, design and fit a NIBE F1245 ground source heat pump (GSHP) and exhaust air package. This is made up of an 8kW GSHP, an indoor unit complete with integrated 180L hot water storage cylinder and built-in controls, a 100L buffer tank and a NIBE FLM exhaust air module. As well as harnessing renewable heat from a 150 m external borehole to provide reliable space heating and hot water throughout the year, thanks to the NIBE FLM module the system also uses heat recovery and air recycling to ensure temperature-controlled ventilation.

Results

The new NIBE GSHP system is now fully up and running and is providing efficient, readily available and cost-effective hot water and heating for the Skye Window House and its guests. It is equipped for use with NIBE Uplink – an online monitoring and control programme that will allow both Torsten and Graham remote access to the system via a secure login. The installation is also eligible for the Renewable Heat Incentive (RHI) scheme, which means it can generate ongoing payments for the heat the GSHP produces.

Customer testimonial

"Before the installation, I'd done a lot research into renewable heating technologies and providers – and it was NIBE's expertise and track record in the industry that really stood out. I'm half Swedish, so I knew the company has a long heritage of products that stand up to extreme conditions, and that's exactly what we need in a place where the outside temperature can fluctuate between bitterly cold and very warm. With ventilation in mind, I'd originally been interested in a standalone exhaust air heat pump, so I was also very pleased when Graham advised that we go for the integrated ground source / exhaust air setup.

"Overall, we are finding the system very responsive and easy to use. I simply set the desired temperature and leave it to its own devices, and it helps create a cosy, luxury feel in the house. I have no worries about guests using it either, as the controls are so intuitive (as straightforward as using an iPhone). From a logistical point of view, the system is far lower maintenance and cost-effective to run than other off-grid alternatives, like oil."

Torsten Mansson

WHY CHOOSE A NIBE VIP INSTALLER?

Once you've chosen the right NIBE system to meet your heating/ventilating needs, the next step is to ensure it is installed correctly so it can perform to its full potential.

As a leading renewables manufacturer, NIBE understands the vital importance of quality installations, which is why we have built an extensive network of highly skilled, trusted installers across the country.

Our NIBE VIP installers are fully trained and accredited to fit our products to the highest possible standards, so you can benefit from optimum results and full peace of mind. They are also MCS certified – an essential requirement to qualify for the government's Renewable Heat Incentive (RHI) payments.

To find a local VIP installer near you visit **nibe.co.uk** and use our 'find a VIP-installer' tool**.**

NIBE VIP installers:

- Have completed NIBE product training
- Offer an extended warranty
- Have experience fitting NIBE technology
- Are MCS registered (essential requirement for RHI payments)
- Are signed up to NIBE's strict code of practice

Under NIBE's code of practice installers must:

- Perform professionally, competently and responsibly
- Comply with all relevant UK regulations, standards and codes of practice
- Install and commission all NIBE equipment in accordance with all NIBE's procedures and installation manuals
- Complete benchmark check lists for NIBE products
- Fully demonstrate correct system operation and controls to customers
- Register installations on NIBE's website
- Liaise directly with customers and respond to NIBE product enquiries in a quick and proficient manner
- Keep fully up to date with NIBE's product range as well as developments in the UK's plumbing and heating industry

NIBE OF SWEDEN

Living in harmony with nature

The Swedes have a long and impressive track record of clever, money-saving innovations that use resources sparingly. The simple reason for this is that Sweden was historically a poor agrarian country. A harsh winter climate made food scarce for many months, necessitating careful forward planning. Today, Sweden is a technologically advanced country with a successful economy, so this is no longer necessary. However, the mindset continues to be manifested in the form of fabulous, cost-saving innovations.

NIBE is a perfect example of the economical Swedish mind at work! The company was founded by Nils Bernerup in 1952, after a particularly cold winter. And over the last 60 years it has become Sweden's leading supplier of domestic heating products, continually driving the development of ever-more efficient heating methods.

Early products included water heaters and pressure vessels. In the 1970s these were supplemented by electric boilers. Later, heat pumps and a wide range of other heating products that meet the needs of the European markets, were added to the mix.

Nowadays, NIBE is a leading player in heating solutions around Europe, which is partly due to the fact that our heat pumps are designed to cope with the very coldest Swedish nights.

NIBE OFFERS
ENERGY FOR LIFE

NIBE is one of Europe's leading manufacturers in the domestic heating sector, offering a wide range of products and solutions to meet every individual need. Our range includes ground source and air source heat pumps, domestic boilers, water heaters and a variety of other products designed to generate and distribute heat.

Ground source heat pumps

Ground source heat pumps extract solar energy which is stored in the soil, bedrock or a nearby water source, thus providing an environmentally friendly alternative for the heating of houses, apartment buildings and other large properties. Our ground source heat pumps are available with or without an integrated water boiler.

Air source heat pumps

Air source heat pumps extract and upgrade the heat from the outside air. Unlike the simpler air/air heat pumps, they can be connected to the building's central heating system to provide both heat and hot water, and in some cases, cooling.

Exhaust air heat pumps

Exhaust air heat pumps can provide your home with heating, hot water and ventilation. Heat is extracted from the outgoing air in the ventilation system then recycled to heat the incoming air and hot water supply.

Biomass Boilers

NIBE offers a range of different boilers that run oil, electricity, pellets or wood. For those who fear dependence on one fuel source, we also offer a combination boiler. This makes it possible for you to choose the cheapest, most plentiful source of energy at any given time. Combine your boiler with an air source heat pump or solar panels for even greater savings.

Solar thermal

Our solar thermal collectors absorb the sun's rays, delivering free, clean energy to your heating system. They become an integral part of your total energy supply supported by our heat pumps which supply this extra free energy in a smart, controlled way. You can also use our solar collectors in combination with a NIBE biomass boiler (logs or pellets) or a NIBE water heater powered by electricity or gas.

Exhaust air heat pumps

Ground source heat pumps

Air source heat pumps

Biomass boilers

Solar thermal

YOUR NEXT STEP?

Find your local NIBE office at www.nibe.eu. They'll help you locate your nearest NIBE installer and select the best kind of heat pump for your needs.

20/20/20

European Directive 20/20/20

The 20/20/20 European directive imposes compulsory targets on the EU's 27 member states, specifying that 20% of energy consumption must be met by renewable sources by 2020. Since NIBEs heat pumps are now classified as a renewable energy source, their installation will help member states reach this ambitious target. And in many cases, local or regional authorities are offering home owners subsidies to switch their existing heating systems to a renewable source such as a heat pump.

M10784 KBR UK NIBE Ground source 1623-6

ENERGY FOR LIFE

NIBE

NIBE ENERGY SYSTEMS LIMITED
Unit 3C, Broom Park, Bridge Way
Chesterfield, S41 9QG
Tel. 0845 095 1200
Fax. 0845 095 1201
www.nibe.co.uk