



HEATING WHEN YOU NEED IT
COOLING WHEN YOU DON'T
NIBE™ **SPLIT** Air/water heat pump

A new generation of heat pumps
DESIGNED FOR EARTH



FREE ENERGY ANYONE?

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 air.

Believe it or not, you can actually use the outside air, one of nature's totally free gifts, to heat, and indeed cool your home. Even at sub-zero temperatures, ambient air contains heat. And when you concentrate that heat using a NIBE air/water heat pump, you can get enough out of it to heat up both your home's water-based radiators or underfloor heating and sanitary water. The same heat pump can also be used as an air-conditioning unit to cool your house during the summer.

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

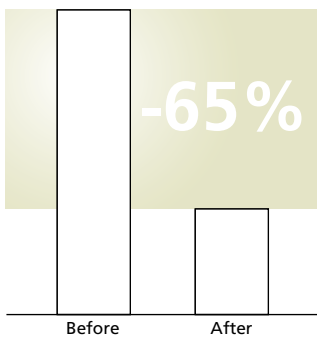
WHY CHOOSE AN AIR/WATER HEAT PUMP?



Here are the two most obvious reasons

The first is financial. An air/water heat pump makes heating your home and hot water much cheaper. You can reduce your heating costs by up to 65%, although the exact figure depends on several factors such as where you live, the size of your house and whether or not you use the cooling function. Your initial investment is relatively low since an air/water heat pump, unlike a ground source heat pump, does not require any geothermal drilling. And the efficiency of NIBE's heat pumps (they have an especially high operating range) positively impacts the speed with which you recover your investment. With energy prices continually rising, you're unlikely to regret your decision. In fact, you'll start enjoying savings from the first month.

The second reason for choosing an air/water heat pump is that it's so environmentally-friendly. By merely upgrading naturally occurring energy from the air outside to heat your home and hot water, it leads to much lower CO₂ emissions than any traditional fossil-fuel based heating system.



Enjoy a dramatic reduction in energy consumption and up to 65% off your heating bills when you install a NIBE air/water heat pump!

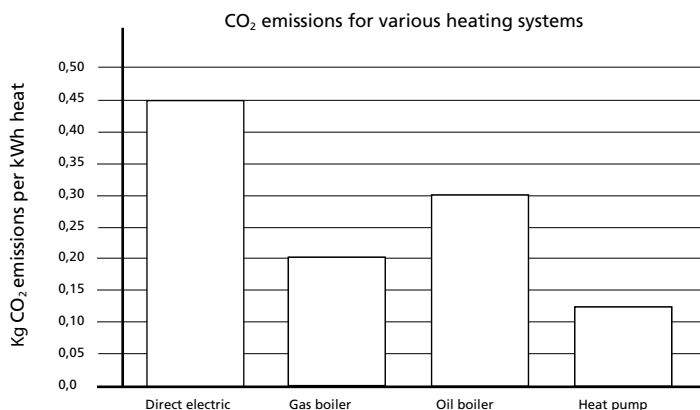


Wherever you live, you can install an air/water heat pump and enjoy efficient, safe, problem-free, heating and hot water at a fraction of the alternative cost and a fraction of the environmental impact.

Consider this

If all the approximately 1 million new houses built in Europe installed heat pumps, by 2016, we would be saving over 3 600 000 tonnes of CO₂ emissions per year.

Since the CO₂ emissions from an average family car are 3–4 tonnes per year. That's the equivalent of taking about a million cars off the road!



HOW DO YOU GET HEAT FROM COLD AIR?

Heat pump technology is actually based on a very simple, well-known principle. It works in a similar way to any domestic refrigerator, using a vapour compression cycle.

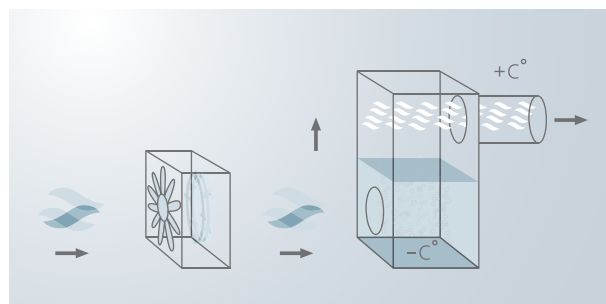
The main components in the heat pump are the compressor, the expansion valve and two heat exchangers (an evaporator and a condenser).

A fan draws the outdoor air into the heat pump where it meets the evaporator. This is connected in a closed system containing a refrigerant that can turn into gas at very low temperatures. When the outdoor air hits the evaporator the refrigerant will turn into gas.

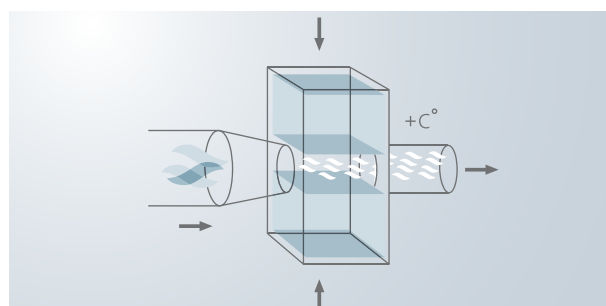
Then, using a compressor, the gas reaches a high enough temperature to be transferred in the condenser to the house's heating system. At the same time the refrigerant reverts to liquid form, ready to turn into gas once more and to collect new heat.

Using an inverter-driven heat pump compressor, the system can be regulated so that heat output matches the exact capacity required at any given time. This means the heat pump will only consume the exact energy needed, making it highly efficient.

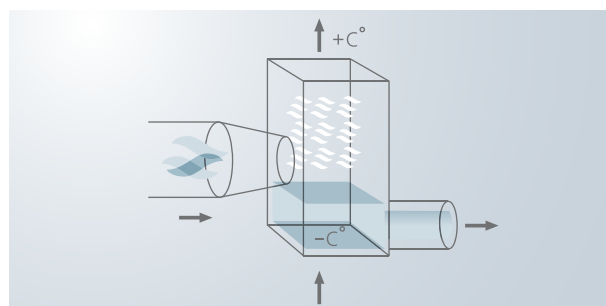
In the summer, the refrigeration circuit is capable of operating in reverse to provide cooling on demand.



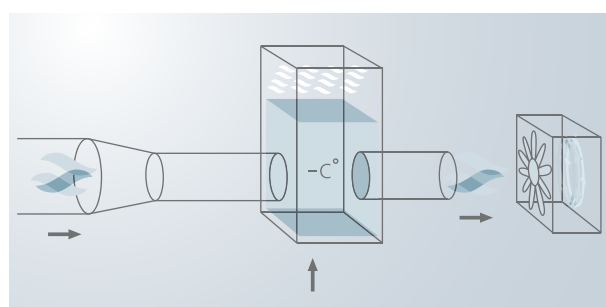
1. Heat from the outside air is drawn in by the fan. The refrigerant in the evaporator is colder than the air, causing the heat to move from the air to the refrigerant. It then evaporates and absorbs the energy from the outside air.



2. This vapour moves to the compressor and reaches a higher pressure and temperature.



3. The hot vapour enters the condenser and gives off heat as it condenses.



4. The refrigerant moves to the expansion valve; drops in temperature and pressure; then returns to the evaporator.



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:

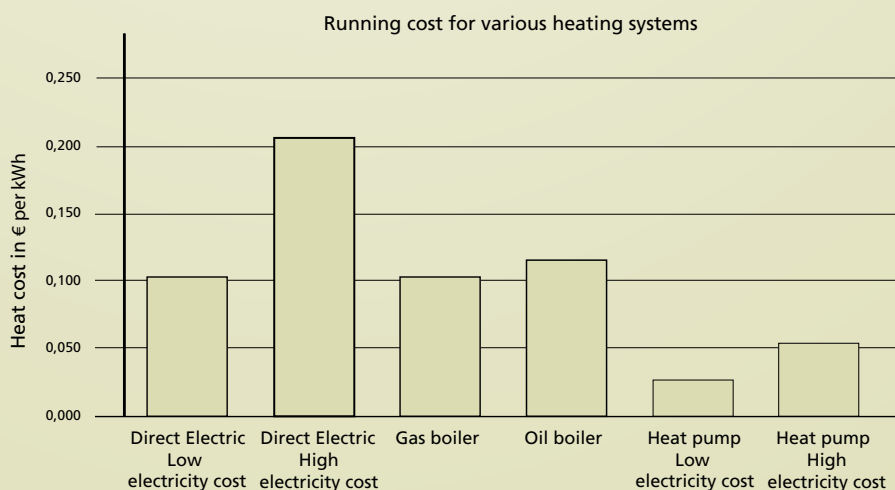
When compared to alternative heating solutions, heat pumps have a very low environmental impact.

Designed for domestic use, NIBE air/water 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 air/water heat pump. It merely upgrades energy from the outside air. Heat pumps are now officially classified as a renewable energy source.

HOW DOES A NIBE AIR/WATER HEAT PUMP COMPARE WITH A TRADITIONAL BOILER?

To put it simply, they're almost four times more efficient! With conventional oil and gas boilers, 1 kW of input energy provides less than 1 kW of output energy or heat. Using a NIBE air/water heat pump every 1 kW of input energy is converted into an average of 3.6 kW of output energy or heat. There is no escaping the obvious conclusion – a heat pump is the absolute best way to get low cost heating and hot water.





More good reasons to exchange your conventional boiler for a NIBE air/water heat pump:

- You can reduce your home's CO₂ emissions by up to 50%
- A NIBE air/water heat pump is ideal for underfloor heating and water-filled radiators
- Some NIBE heat pumps also include a cooling function
- No natural gas supply, flues or ventilation are needed
- The system is easy to install
- It's cheap to run and easy to maintain
- An air/water heat pump can be installed no matter where you live - all you need is electricity
- It gives clean and discreet heating, eliminating the need for a chimney



PRESENTING NIBE™ SPLIT

AIR/WATER HEAT PUMP | Heating when you need it, Cooling when you don't.



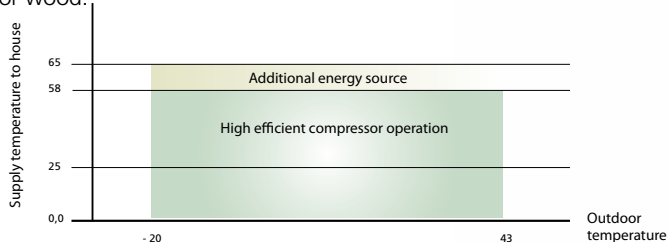
NIBE™ SPLIT

For heating, cooling and hot water.

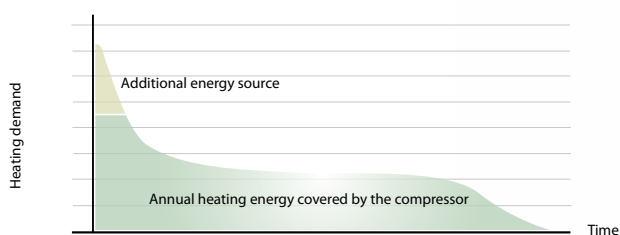
NIBE SPLIT is a plug and play, all inclusive heating and cooling system. It combines a well-designed, high quality outdoor unit with an indoor unit using NIBE's cutting edge technology to produce a unique efficient and environmentally-friendly system for heating, cooling and domestic hot water. It's easy to install, easy to manage and has a discreet, timeless design.

All year round!

Perfectly designed to give an optimum performance throughout the year, NIBE SPLIT is also one of the most advanced, efficient heating systems available today. While many heat pumps cease to work at exactly the moment when your need is greatest, NIBE SPLIT gives you an unusually wide operating range. It can generate hot water up to 65 °C and continue to operate smoothly even if outside temperatures drop to -20 °C. On the rare occasions when the heat pump is unable to meet the household's needs, NIBE SPLIT's built-in immersion heater activates a complementary source of energy such as solar power, gas or wood.



NIBE SPLIT can deliver 58 °C hot water from the compressor across a full outdoor temperature range from -20 to +43 °C. It is engineered to handle an input pipe temperature to the heating system of up to 65 °C (compressor and added energy). This makes NIBE SPLIT easier to install and adapt to different heating systems in existing buildings.



Usually, with a NIBE SPLIT heat pump installation, the additional heat needed on extremely cold days only accounts for 3-5% of the building's total heating needs. For a more precise energy calculation, please contact your nearest NIBE installer.

For cooling

Owners of a NIBE SPLIT heat pump also have the option of setting it up to provide cooling for especially hot days. In homes with water-filled radiators or underfloor heating, this function can be achieved by adding fan coils. In contrast to a traditional cooling system which stops and starts in response to the thermostat's signals, a NIBE SPLIT delivers cooling in accordance with the household's demand, and spreads a comfortable temperature evenly around your home.

Technical specifications

NIBE SPLIT

Operating voltage	1 x 230 V or 3 x 400 V
Working range during heating with compressor (ambient temperature)	-20 – +43 °C
Working range during cooling (ambient temperature)	+15 – +43°C
Max temperature flow line	65 °C

Indoor unit NIBE ACVM 270

Immersion heater	Max 9 kW
Volume, total	270 l
Height	1760 mm
Width	600 mm
Depth	660 mm
Weight	140 kg

Outdoor unit NIBE AMS 10

Compressor	Twin Rotary
Speed, heating	25–85 Hz (rps)
Speed, cooling	20–80 Hz (rps)
Fan flow (heating, nominal)	4380 m ³ /h
Height	845 mm
Width	970 mm
Depth	370 mm
Weight	74 kg
Delivered compressor output EN14511 7/45 heating	3,5–12,0 kW
Delivered compressor output EN14511 35/18 cooling	3,3–12,0 kW
COP EN14511 2/35 heating	3,7 (nom)*
COP EN14511 7/35 heating	4,4 (nom)*
COP EN14511 7/45 heating	3,6 (nom)*
EER EN14511 35/18 cooling	3,7 (nom)*

* (nom) Nominal 62 Hz

2/35 = 7,2 kW 7/35 = 9,2 kW 7/45 = 9 kW 35/18 = 11 kW



Indoor unit NIBE ACVM 270



Outdoor unit NIBE AMS 10

NIBE™ SPLIT INSTALLED IN YOUR HOME

Triple function:

HEATING/COOLING/SANITARY HOT WATER
NIBE SPLIT – a single system to meet all your heating, cooling and domestic hot water needs.

Indoor unit:

SINGLE, NEATLY PACKAGED MODULE
NIBE has used cutting edge engineering to create a whole system design. The neat indoor module fits into a standard 60 cm x 66 cm space.

Electrical installation:

CONTRIBUTES TO EASE OF INSTALLATION
The outdoor unit does not need a separate electrical connection. It is linked by cable to the indoor unit, which is connected to the power supply.

Outdoor unit:

COMPACT SMALL FOOTPRINT
The outdoor unit is the smallest on the market and has an appealing timeless, design.

Refrigerant in pipes:

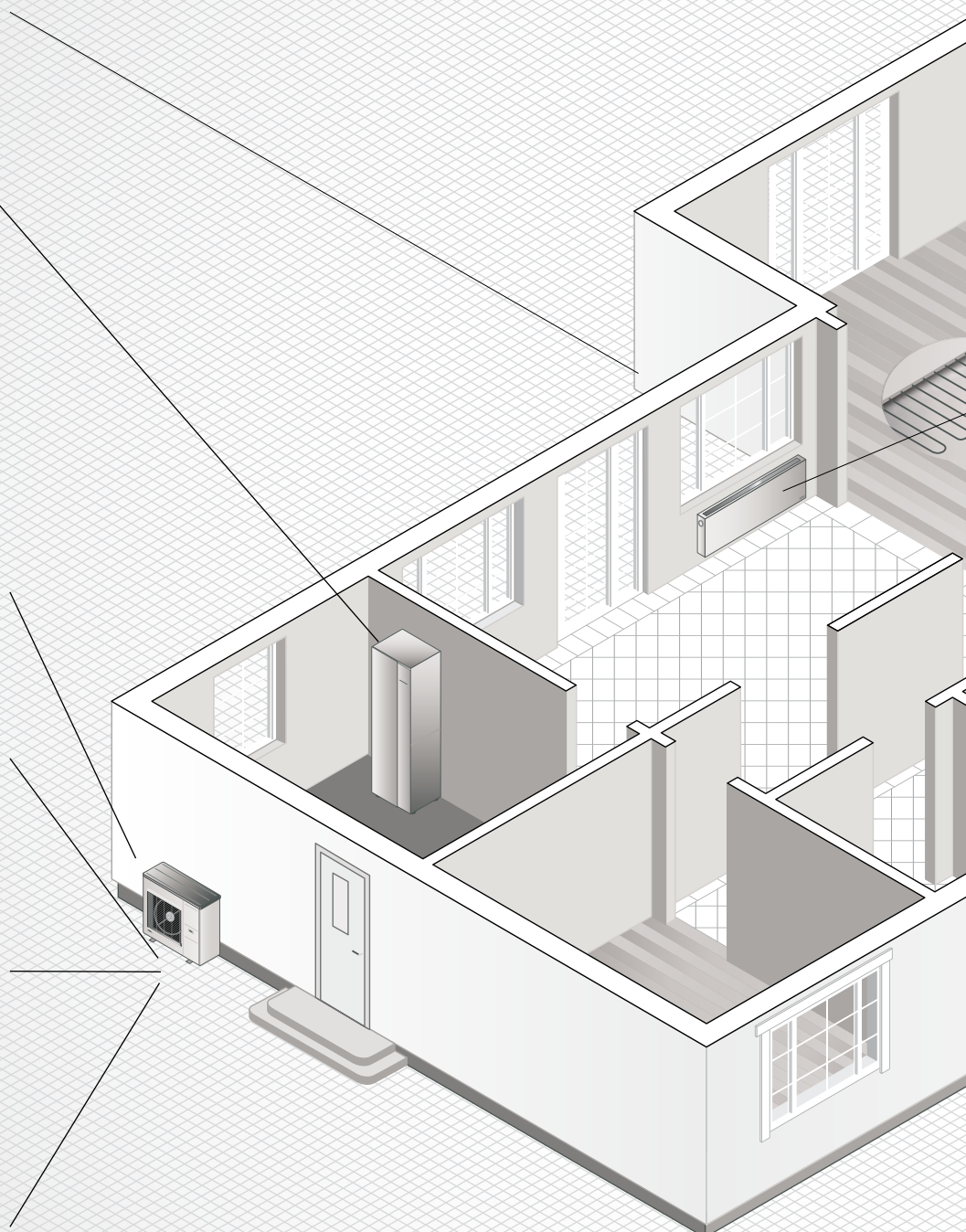
NO RISK OF FREEZING
Even at low ambient temperatures, the outdoor pipes do not freeze since they are filled with refrigerant instead of water.

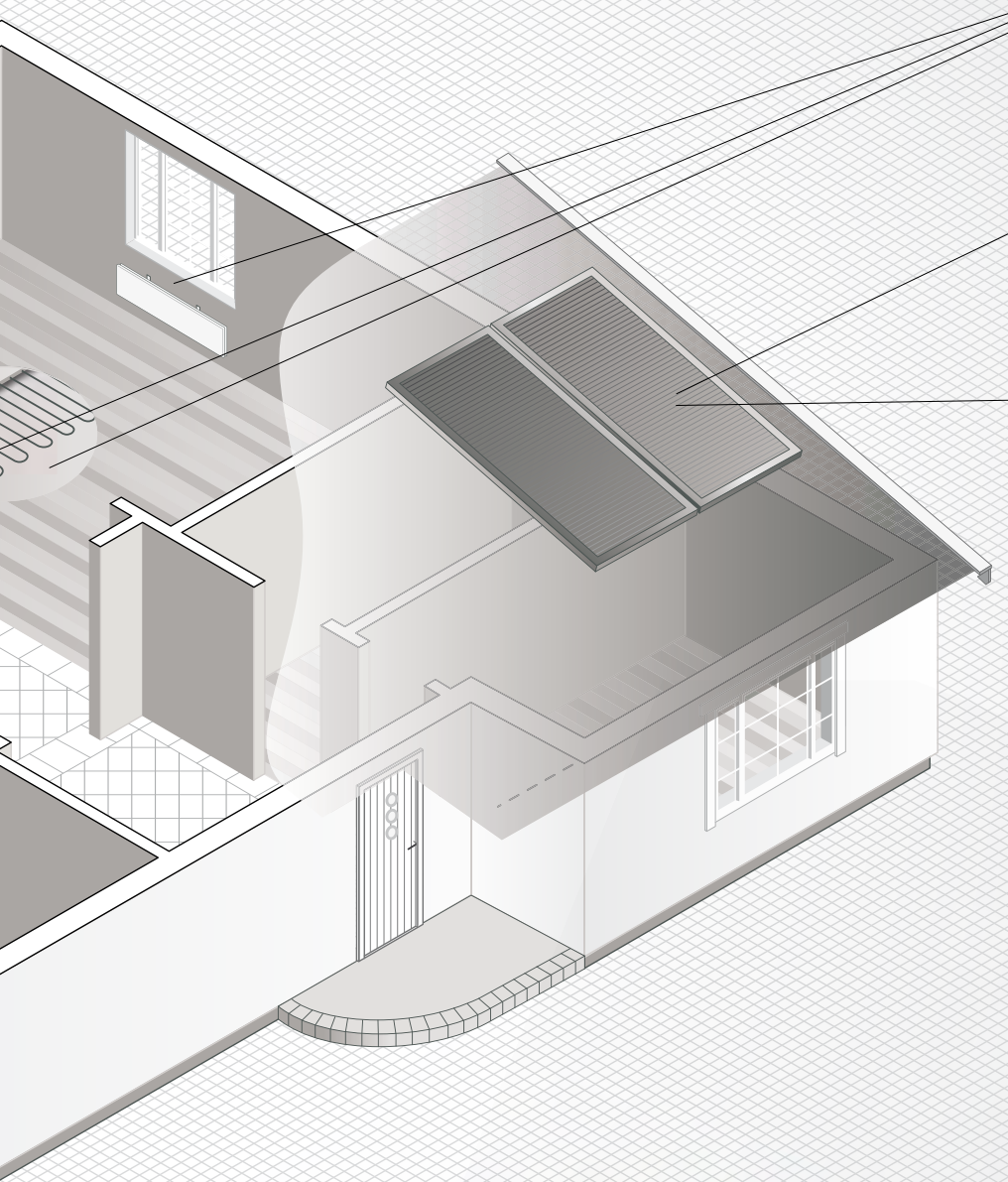
Flexible positioning:

CHOOSE A DISCREET LOCATION
The outdoor unit can be moved to any location up to 12 meters from the indoor unit, giving you the freedom to select the most suitable position in your yard. Please note, if it's over 12 metres away, the amount of refrigerant needed would necessitate annual inspections.

Outdoor unit pre-charged with refrigerant:

EASY INSTALLATION AND ENVIRONMENTALLY-FRIENDLY
The outdoor unit is pre-charged with a refrigerant which has a low environmental impact and does not damage the ozone layer.





Flexible indoor installation:

SWITCH THE FUNCTION TO SUIT THE SEASON
NIBE SPLIT can be used for both heating and cooling. Water-borne distribution of heating takes place via radiators or underfloor system; cooling takes place via fancoils or underfloor system.

Compatibility

CONNECTS EASILY WITH
OTHER ENERGY SOURCES

When you need an additional energy source, NIBE SPLIT can be hooked up to e.g. solar heating panels or an existing boiler.

Green energy connection

EMISSION FREE HEATING AND COOLING

Complementing the energy supply from your NIBE SPLIT heat pump with an alternative source such as solar or wind power results in a system that's almost emission free.



WHAT MAKES NIBE™ SPLIT SUCH A HIGH PERFORMER?

Below, we've highlighted some of the key features which make NIBE SPLIT such an efficient, high performing heat pump. Working on the principle of demand-based operation, it combines high-tech components with an advanced control system to deliver the heat or the cooling you need, at the required level, exactly when you need it.

1 Twin-Rotary compressor with inverter controls

LOW WASTE - HEAT SUPPLY VARIED ACCORDING TO NEED

The compressor can run between 30% and 100% capacity. Thanks to inverter controls, the speed varies automatically according to the household's energy requirements. It is designed to perform efficiently even at a low outside temperature, when home owners experience the greatest need for heat.

2 Compressor control

HIGH EFFICIENCY AT LOW AMBIENT TEMPERATURES

The compressor is operated and controlled in such a way as to be efficient even at low ambient temperatures.

3 Expansion valve

GREATER PRECISION IN THE REFRIGERANT CIRCUIT

The expansion valve used in NIBE SPLIT was chosen for the precision it allows. The result is high efficiency and capacity control for both cooling and heating.

4 Cabinet coating

FOR DURABLE GOOD LOOKS

With two layers of epoxy-paint on the outdoor unit, its good looks will last a long time.

5 Finned coil design (evaporator)

HIGH PERFORMANCE AND DURABILITY

The finned coil absorbs or rejects energy from the ambient air, for heating and cooling respectively. A polymer coating makes it especially durable, while the coil's enhanced surface improves heat transfer from the air.

Low starting current

PREVENTS INTERFERENCE WITH OTHER ELECTRONIC DEVICES

NIBE SPLIT has an inverter driven compressor which gives a low starting current. By starting slowly and moving gradually up to required capacity, the system does not interfere with other electronic devices in the building.

Fan (motor and blade)

CONSERVES ENERGY

Driven by an energy-saving motor, the fan's speed varies so only the required amount of air is utilised. The blades are specially designed to move as much air as possible at the lowest noise level.





8 Control display panel

EASY TO OPERATE

Designed to manage both indoor and outdoor unit, this user-friendly interface means everyone can enjoy the full benefits of the NIBE SPLIT system: a uniquely efficient installation that adapts in response to the household's fluctuating needs.

9 Circulation water pump

SIMPLE SYSTEM FOR ON-DEMAND HEATING

Driven by an energy-saving motor, the pump's speed varies so only the required amount of water is moved.

10 Insulation material and thickness

RETAINS HEAT AND PREVENTS DRIPPING

Energy losses are limited by an integrated, hermetically sealed insulating layer on the components. This also prevents condensation on pipes and dripping when in cooling mode. Insulation of the water tank minimises heat loss and saves money.

11 Integrated heat exchanger

DOMESTIC HOT WATER WHEN YOU NEED IT

The heat exchanger is integrated into the domestic hot water tank, it is corrosion resistant and its surface is enhanced for better heat transfer. This leads to higher capacity and greater reliability.

12 Control system

MANAGES ENERGY USE IN YOUR HOME

The control system senses the characteristics of the building and accommodates its many variables. It monitors and manages the outdoor unit, its compressor speed, fan speed and defrosting needs. The result is a dynamic, variable supply of heating/cooling and temperature level.

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 CO₂ emissions is becoming a legal requirement as well as an environmental necessity.

Over 70% of an average home's CO₂ 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 CO₂ 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 drive the 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 75%.

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.



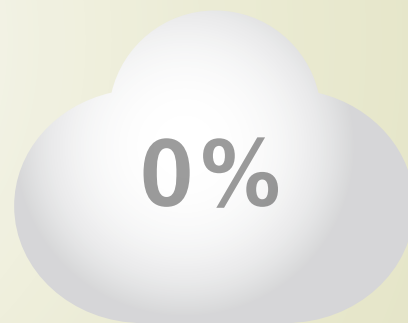
Working towards a zero carbon future

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 tidal energy?

Classified as renewable energy

Some governments and regional authorities offer subsidies to homeowners to switch from fossil fuel based heating to more modern, renewable source of energy. Since heat pumps are now officially classified as renewable energy, there couldn't be a better time to change!

For more information, please visit the NIBE website in your country.



KEEP YOUR OPTIONS OPEN!

A NIBE SPLIT heat pump gives you the flexibility to use any other kind of additional energy source as and when it's needed. Examples of docking options include wood, gas, oil, pellets, solar panels, windmills and of course, electricity.

A future proof heating system

With all these different docking options, your home's energy needs are guaranteed for the future too. Current conditions might favour the use of gas as a complement to your heat pump but if supplies become unreliable, it's a comfort to know you can also use e.g. pellet-fired heating as an energy booster instead – without changing the heat pump, your main source.

Make it greener!

Given widespread concerns about climate change and the rapid development of legislation regarding permissible CO₂ emissions levels, it's also good to know that your heat pump connects easily to a renewable energy supply, such as solar panels.

Choose this option today, and you'll be all set for many years to come. And let's not forget the increase in your home's resale value as a result of having a modern low energy heating system installed!





THE CASH MACHINE IN YOUR GARDEN

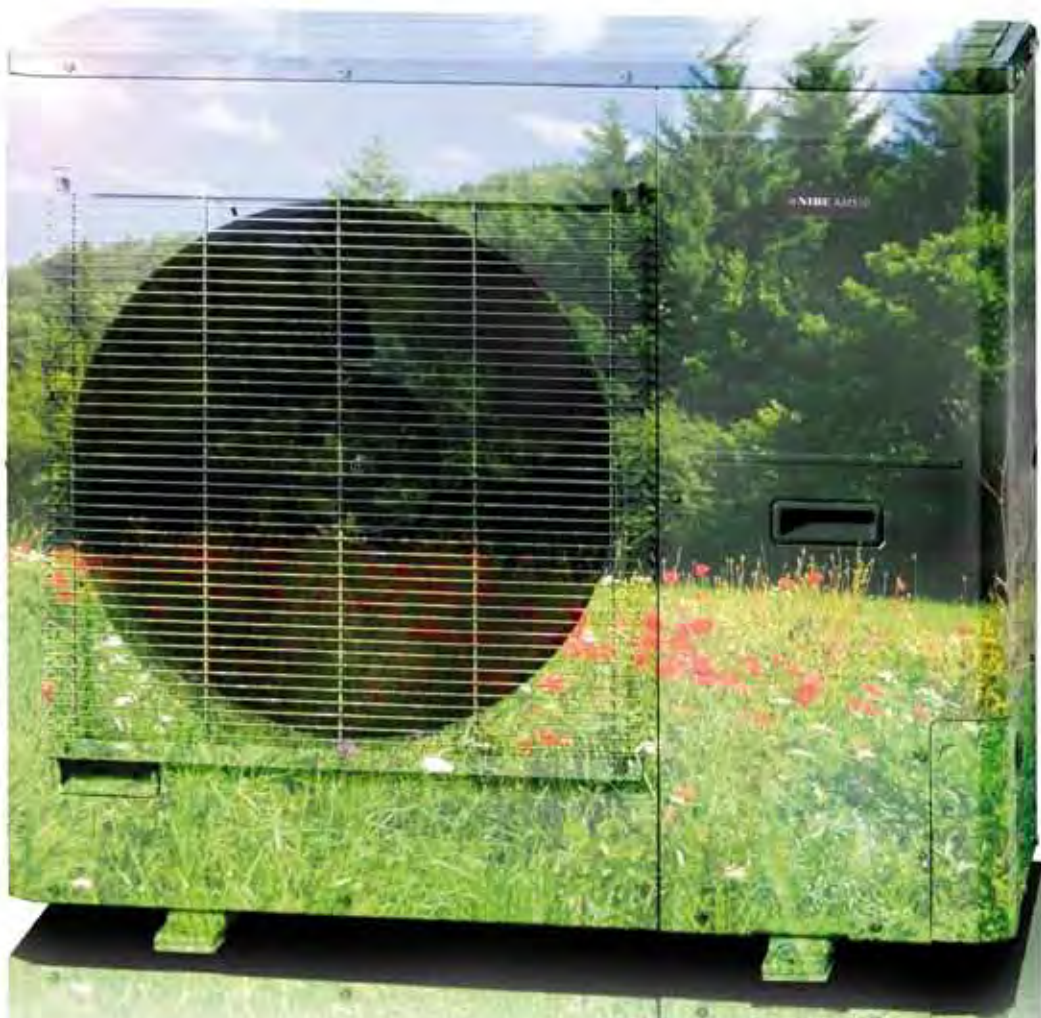
– you save up to 65% every month!

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.

Traditionally heat pumps have been seen as only suitable for underfloor heating. However with the advanced control system of NIBE SPLIT and its ability to provide optimum variable flow temperature control, radiators can now be easily provided with the hot water they need and prove to be a very efficient option.

More than anything, NIBE SPLIT is an investment in the future. Developers, builders and home-owners want to be assured that technology they purchase today will be relevant and useful for many years to come. NIBE SPLIT has 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 SPLIT 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.



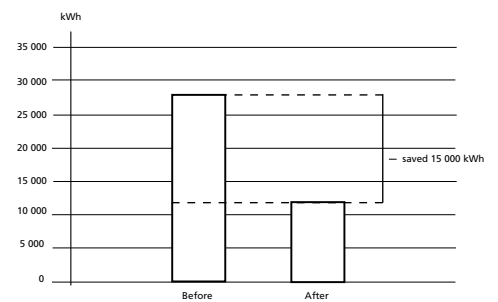
CASE 1

BIGGER HOME? BIGGER SAVINGS, NOT BIGGER BILLS.





A medium-sized house in the countryside, built in 1975.



Effective heating, slashed energy bills and emissions - and summer cooling with no extra investment.

The background

A family of four is living in a spacious 170 sq. m. house in a sparsely populated area. The house is currently equipped with electric radiators and an electrical water heater. The water heater needs changing and some of the radiators are so old that they will soon also need replacing. On average, this family's yearly electricity consumption is 33 000 kWh, of which 27 000 kWh is for heating alone.

The cost of this level of energy consumption places great strain on the family's finances. The family wants to reduce its energy bills while maintaining a good level of comfort in their large home. They also want to make a long-term, environmentally friendly choice.

Solution

They first consider an air/air heating system, but decide to go for an air/water heat pump in order to satisfy their need for hot sanitary water at the same time. The air/water heat pump is able to reduce overall energy consumption while spreading warmth more evenly over the whole house and providing hot water as well.

The water heater is removed. A NIBE SPLIT is installed and a new fancoil is mounted on each floor, to spread the warmth throughout their home. Some of the old electric heaters are left as comfort boosters to be used in case of exceptionally cold conditions, but these are generally switched off.

Results

This family's energy consumption go down from 27 000 kWh to 12 000 kWh.

With a NIBE SPLIT air/water heat pump they save 15 000 kWh.

With a minimum of disruption to install the new air/water heat pump in their house, this family is now saving on energy bills as well as doing their part to meet EU energy objectives for 2020.

They haven't tried the cooling function yet, as they wanted to find out just how much the installation can save on energy costs. But once the summer comes round, they can choose to cool down the house without making any additional investment.

CASE 2

SAVE MONEY – AND THE ENVIRONMENT – FOR YEARS TO COME!





A newbuilt spacious house in the city.

The background

A family of four is moving into a new house in Bremerhafen, Germany. The house is spacious (212 sq. m.) so the chosen heat source needs to be cost-effective to keep energy bills at an affordable level. For this family, the priorities are to save energy as well as reducing environmental impact and CO₂ emissions, in line with EU objectives for 2020. A major advantage of new buildings is their high standard of insulation, (windows are double-glazed) so the whole construction is designed to retain heat.

Solution

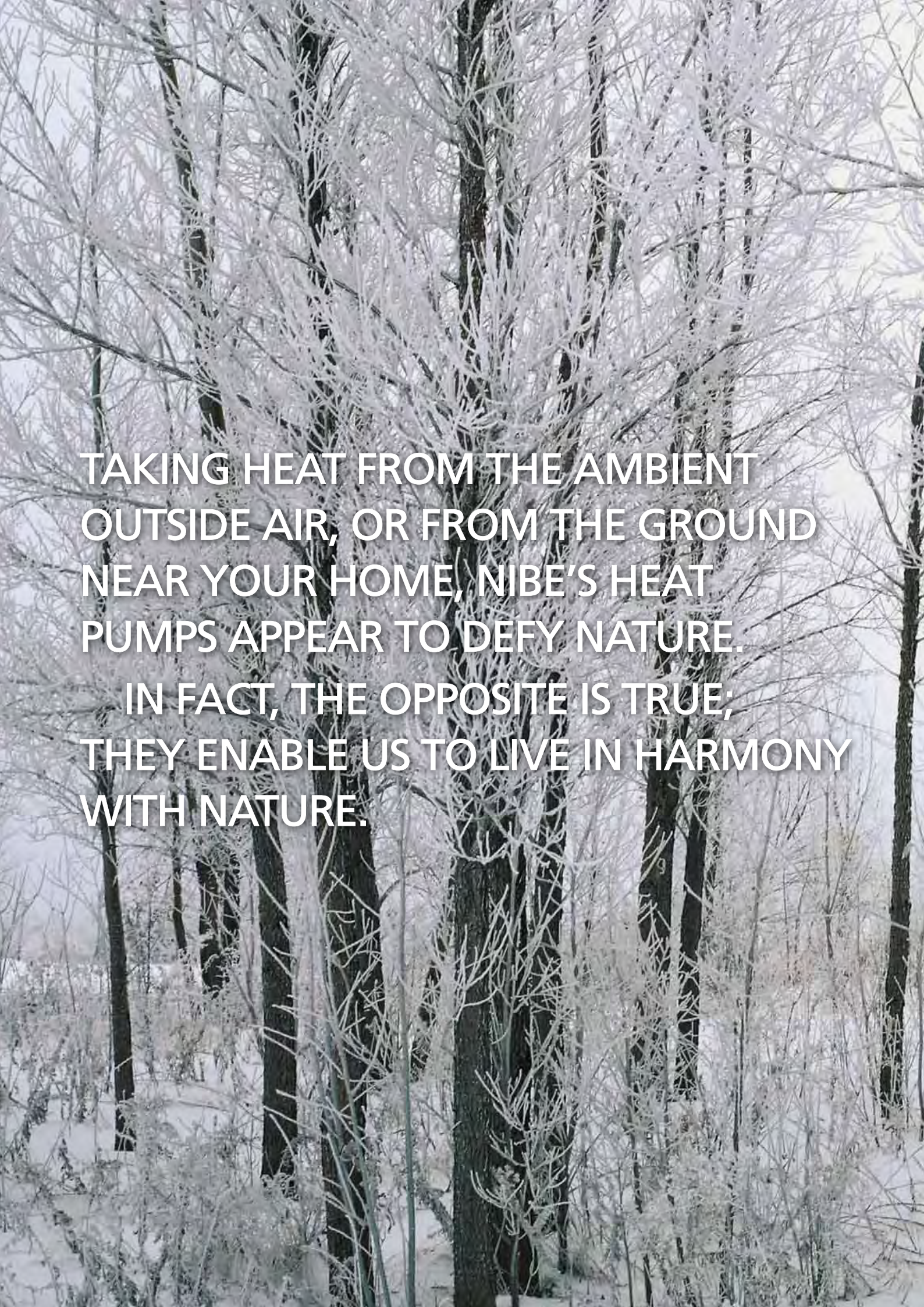
Several heating system options might be considered for a house of this kind. For example, gas boilers are common in Germany. However, there are environmental reasons against this method, and although cheaper than electricity, gas supplies are not always reliable.

Other kinds of heat pumps would be unsuitable for this kind of house. Architects wouldn't choose a ground source heat pump for example, because vertical drilling is too expensive on this type of ground. Moreover, in a city location, the plot is usually too small for a horizontal collector to be installed.

A highly efficient air/water heat pump gives low running costs, so even when the expense of installation is included, the payback time is relatively short and the total cost of the system is still advantageous. The heat pump powers an underfloor heating system, which means there are no radiators in the house and gives an attractively neat, streamlined interior. Hot sanitary water comes from a water heater, also using energy provided by the heat pump.

Results

The annual energy requirement for this house is estimated at 24 000 kWh – with both heating and hot water included. With a NIBE SPLIT, the costs of providing this energy will be kept at a reasonable level. Using energy provided by the air/water heat pump, the heating and hot water system will stand the test of time. It works efficiently from day one and will function with a low environmental impact for years to come.

A photograph of a winter forest. The trees are covered in a thick layer of snow, and the ground is also covered in snow. The sky is a pale, overcast blue. The text is overlaid on the center of the image.

TAKING HEAT FROM THE AMBIENT
OUTSIDE AIR, OR FROM THE GROUND
NEAR YOUR HOME, NIBE'S HEAT
PUMPS APPEAR TO DEFY NATURE.

IN FACT, THE OPPOSITE IS TRUE;
THEY ENABLE US TO LIVE IN HARMONY
WITH NATURE.



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.

THREE KINDS OF HEAT PUMPS FROM NIBE

Exhaust-air heat pumps

Ideal for heating domestic premises and tap water. An exhaust-air heat pump ventilates the building and recovers the energy in the warm air, reusing it to warm up your sanitary water or fuel a central heating system.

Ground-source heat pumps

Drawing heat from surface soil, bedrock or the water in a nearby lake, this is a great option for heating houses, multiple-unit properties and other larger buildings. Available with or without an integrated water heater.

Air/water heat pumps

These pumps extract heat from the ambient outside air. In contrast to simpler types of air-to-air heat pumps, they are connected to the building's heating system and able to produce both heat and hot water.

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 air/water 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.

20/20/20

Exhaust air heat pumps



Ground source heat pumps



Air/water heat pumps



Your next step?

Please find your local NIBE office on .
They will help you to locate your local NIBE installer
and select the best kind of heat pump for your needs.



A new generation of heat pumps
DESIGNED FOR EARTH

What do we mean by
"A new generation of heat
pumps – designed for earth?"

Mother Earth.

Our products are relevant ALL OVER THE EARTH.

Since we now offer a system with both heating and cooling functions, you can use a NIBE heat pump anywhere, regardless of your geographic location.

**Our products are designed with
the HEALTH OF THE EARTH in mind.**

NIBE products have a very low environmental impact compared to other heating systems currently available. They do have some impact, as do all manufactured goods, but we are continually working to minimise this and to deliver an environmental payback in the form of reduced emissions.



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