



NIBE SOLAR Energy
HEAT PUMP SYSTEMS





HOW TO GET THE BEST OF BOTH WORLDS

Picture it now. You've got solar panels on the roof, capturing nature's best energy source, lowering your heating bills and creating zero emissions. What could be better?

The only snag is, the sun doesn't always shine and it's difficult to store solar energy for longer periods. That's why NIBE has come up with a solution for combining solar energy with a heat pump. This means everyone can enjoy free energy from the sun, even if you live in a country where daily sunshine is not guaranteed.

On sunny days, the NIBE controller automatically channels solar energy into your home's heating system. When it's cloudy or dark, your heat pump kicks in to keep your home at a comfortable temperature and ensure hot water is always available.

If you already have a heat pump, you can further reduce costs and emissions by connecting it to a solar energy system. If you're building a new house or refurbishing an old one, why not install a complete system that combines heat pump and solar panels? Or, if you prefer, you can install a heat pump now with a view to adding solar panels later.

Combining a heat pump with a solar energy solution also reduces the wear and tear on the compressor and gives it a longer life span.

And let's not forget that investing in a clean, modern low cost heating system, always increases the value of your home.

WHY CHOOSE SOLAR ENERGY?

The sun is an abundant, free, zero-emission source of energy. It can be used for hot tap water production alone, or in a combined system for both domestic heating and hot water. If you have a swimming pool, solar energy can be used to heat that too.



It's free and it's unlimited

Once your solar solution is up and running, the energy it provides is absolutely free of charge and supplies are unlimited. A lot of effort has been devoted to developing solar heating solutions in recent years, with the result that the price of equipment has steadily decreased. In the meantime, electricity prices have continued to rise and supplies of fossil fuels have become more insecure. This trend is expected to continue in the future, making solar energy a more attractive option than ever.

Your choice makes a difference!

In recent years, concerns about climate change have driven the interest in alternative energy sources from fringe to mainstream. Solar energy is the queen of all 'green' energy sources. It is not only free; it is silent, renewable and produces no air or water pollution. When you install a solar energy solution, you are also helping to reduce CO₂ emissions.

Guaranteed energy supplies

Combine your solar panels with a heat pump, and you can take advantage of solar energy whenever it's available, without being fully dependent upon it. NIBE offers three different kinds of heat pumps – ground source, air source and exhaust air – all of which can be connected to solar panels. Which one you choose will depend on factors such as how big your garden is, whether or not you live by a lake, if the land is suitable for drilling etc. Your NIBE dealer has all the necessary expertise to help you make this decision.

Increase your home's resale value

Any property with a modern, low energy heating system is highly attractive in today's market. It's a comfort for potential buyers to know that once installed, a NIBE solar energy/heat pump solution not only provides reliable, environmentally friendly energy, but that it more or less takes care of itself! Since the only piece of equipment with moving parts is the circulation pump, maintenance costs are very low.

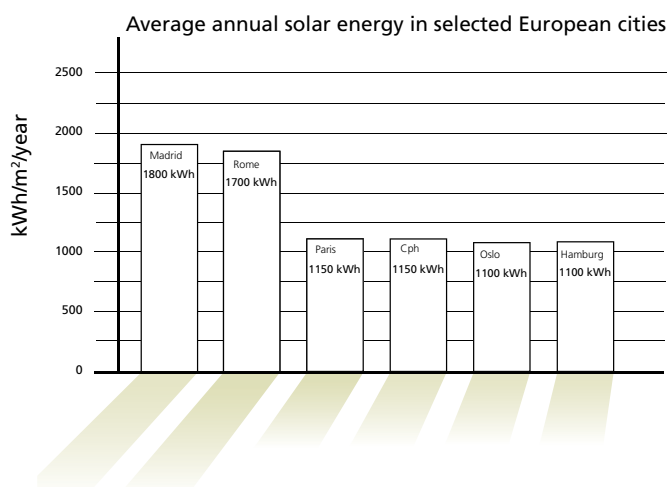
European Directive 20/20/20

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 both solar energy and heat pumps are classified as renewable energy sources, their installation will help member states reach this ambitious target.

What's more, some local or regional authorities are offering homeowners subsidies to switch their existing heating systems to a renewable source. Why not find out what rules apply in your area? See www.nibe.eu for more information.



Invest in a combined solar energy /heat pump system when you refurbish and enjoy low cost, low emission energy for years to come.



You might be surprised by just how often solar energy is available. Take a look at the sun hours chart above!

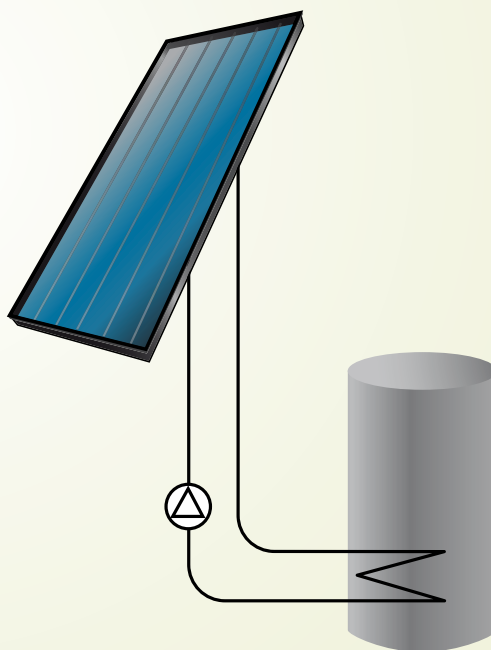
HOW DOES IT WORK?

Solar energy is created by light and heat which is emitted by the sun, in the form of electromagnetic radiation. With today's technology, it is possible to capture this radiation and turn it into usable forms of energy, such as heating.

Normally, the technical feasibility and economical viability of using solar energy would depend on the amount of available sunlight (solar radiation) in the area where you live. Now, thanks to NIBE's combined solar energy/heat pump system many more people can enjoy this clean, free energy source on sunny days.

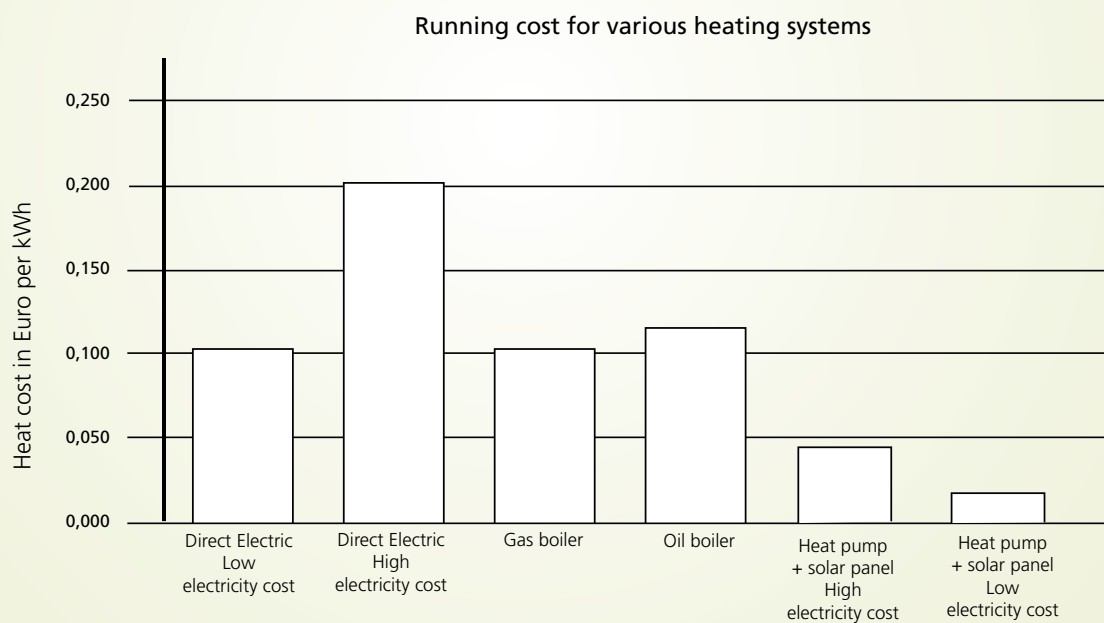
Step by step

1. When the temperature in the solar panels is higher than the temperature in the storage tank, the solar station is automatically triggered into action and starts transferring the heat which has been collected from the sun into the tank.
2. When it's no longer sunny, the solar panels cool off and the solar station stops and uses energy from the heat pump instead.
3. If the sun shines again, the panels warm up and the solar station starts up again. In fact, it can switch back and forth all day long. In a well-insulated NIBE water tank, heat from solar panels can be stored for several days.
4. When the temperature in the tank reaches the desired level, the solar station stops and is in fact inhibited from transferring heat until the temperature has dropped again, thus preventing overheating.
5. During extended dull or dark periods, the heat pump becomes your main energy source. It automatically takes over the job of generating the energy your home needs to remain at a comfortable temperature and provides sufficient domestic hot water.



In a combined solution including solar panels and a heat pump, the system prioritises solar energy when available, since it is cost and emission free. The heat pump is the next most efficient energy source, which generates approximately four times as much energy than is needed to drive the pump.

How little energy does the system really need?



You always have the option to boost energy supplies with e.g. a traditional gas or oil boiler, should the need arise. However, as the graph shows, the NIBE system will use this as a last resort since oil and gas are both more costly and polluting than solar panels or a heat pump.

A 'greener' heating system installed in your home

Given widespread concerns about climate change and the rapid development of legislation regarding permissible CO₂ emissions levels, it's smart to equip your home with a modern heating system that gives you access to two renewable energy supplies. Choose this option today, and you'll be all set for many years to come.

This illustration shows how solar energy can be used in combination with an air/water heat pump. For more information about using different kinds of heat pumps, see the product pages which follow.

Green energy connection:

EMISSION FREE HEATING

Complementing the energy supply from your NIBE heat pump with solar energy results in a system that's almost emission free.

Triple function:

HEATING/COOLING/DOMESTIC HOT WATER

This system meets all your needs: heating, cooling and domestic hot water.

Indoor unit:

SINGLE, NEATLY PACKAGED MODULE

The neat indoor module of this air/water heat pump 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:

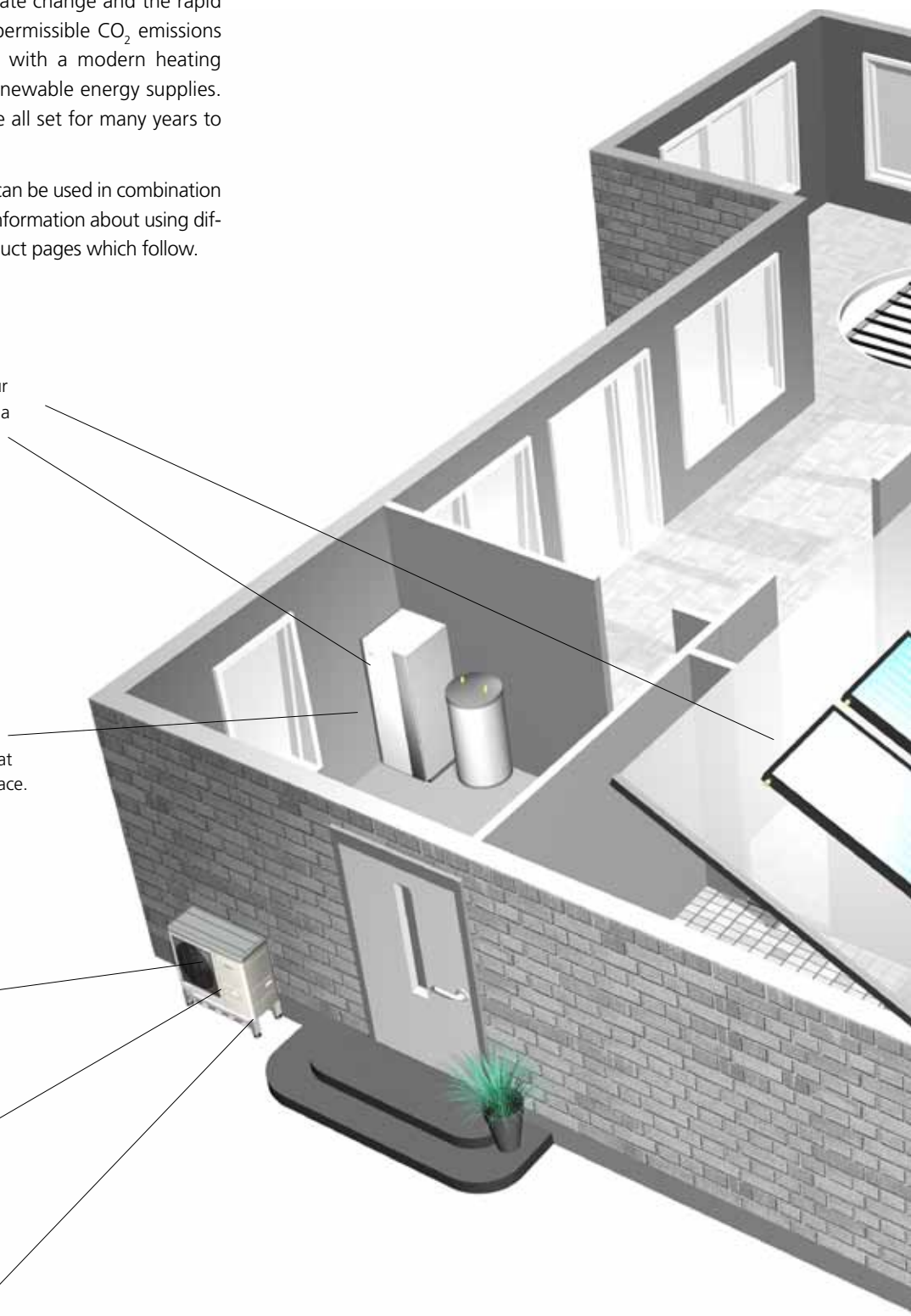
COMPACT SMALL FOOTPRINT

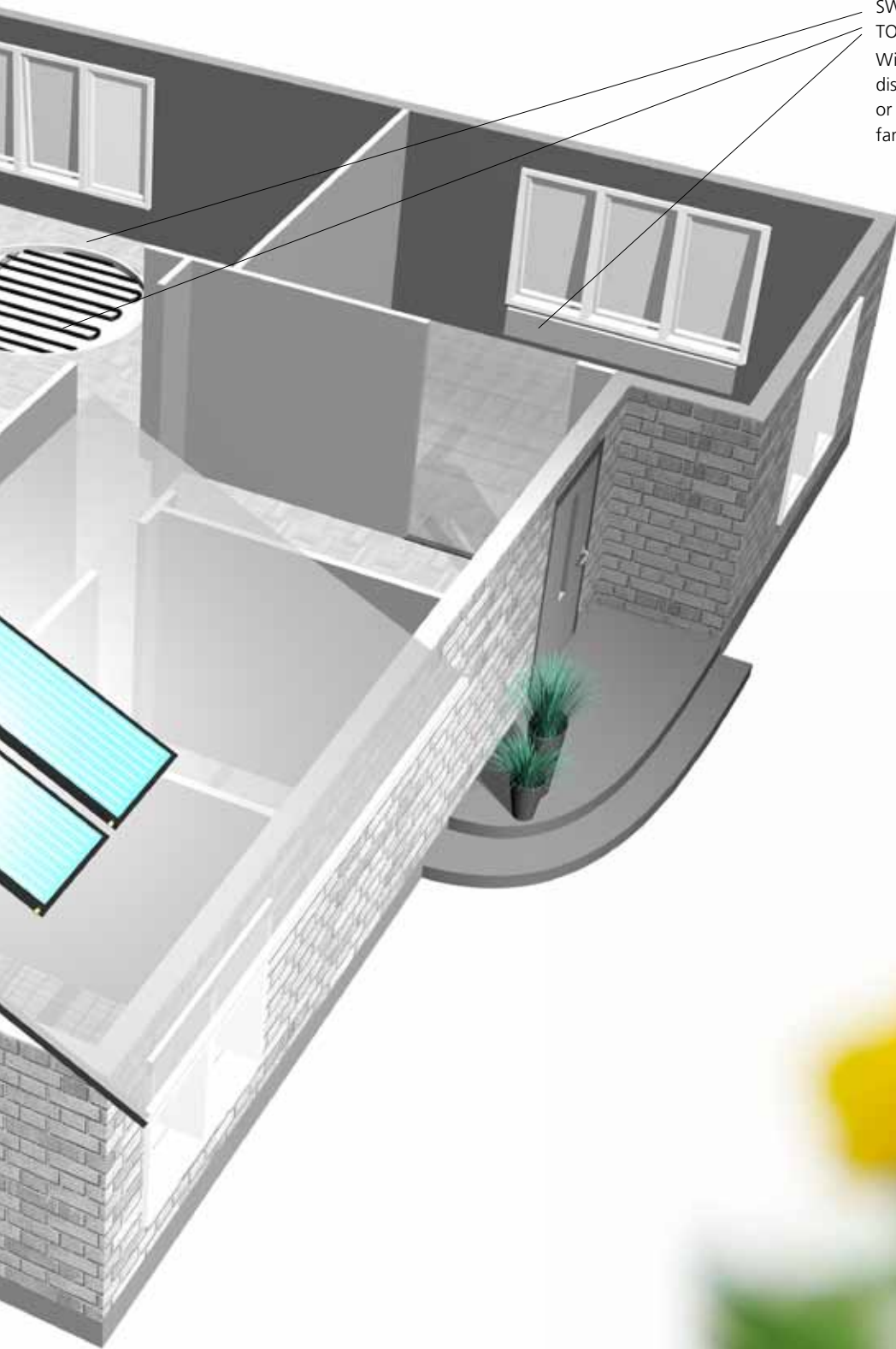
The outdoor unit is unusually small and has an appealing timeless, design.

Flexible positioning:

CHOOSE A DISCREET LOCATION

The outdoor unit can be moved to any location up to 12 metres from the indoor unit.





Flexible indoor installation:

SWITCH THE FUNCTION
TO SUIT THE SEASON

With a NIBE air/water heat pump, water-borne distribution of heating takes place via radiators or underfloor system; cooling takes place via fancoils or your underfloor system.

A photograph of a modern interior space. In the foreground, a dark blue sofa is partially visible, featuring a decorative throw pillow with a white and blue geometric pattern. The sofa is positioned on a light-colored wooden floor. Behind the sofa is a large, floor-to-ceiling window with a black frame. The window provides a view of a lush green landscape with tall grass and several trees. The ceiling is white and has a sloped, vaulted design. The overall atmosphere is bright and airy.

CHOOSE YOUR HEAT PUMP

On the following pages, we present the different kinds of NIBE heat pumps which can be used in a combined solar energy/heat pump system, along with the necessary accessories.



EXHAUST AIR HEAT PUMPS

When to choose an exhaust air heat pump

An exhaust air heat pump is economical to install since it does not require any drilling or digging work and the heat pump functions at a constant level all year round. It is recommended for new houses or ones that were built with the necessary ventilation system from the start. The building should be well-insulated to get the best results. During the coldest weather, electricity or some other 'comfort boosting' source of energy may be needed, so bear this in mind when calculating your total costs.

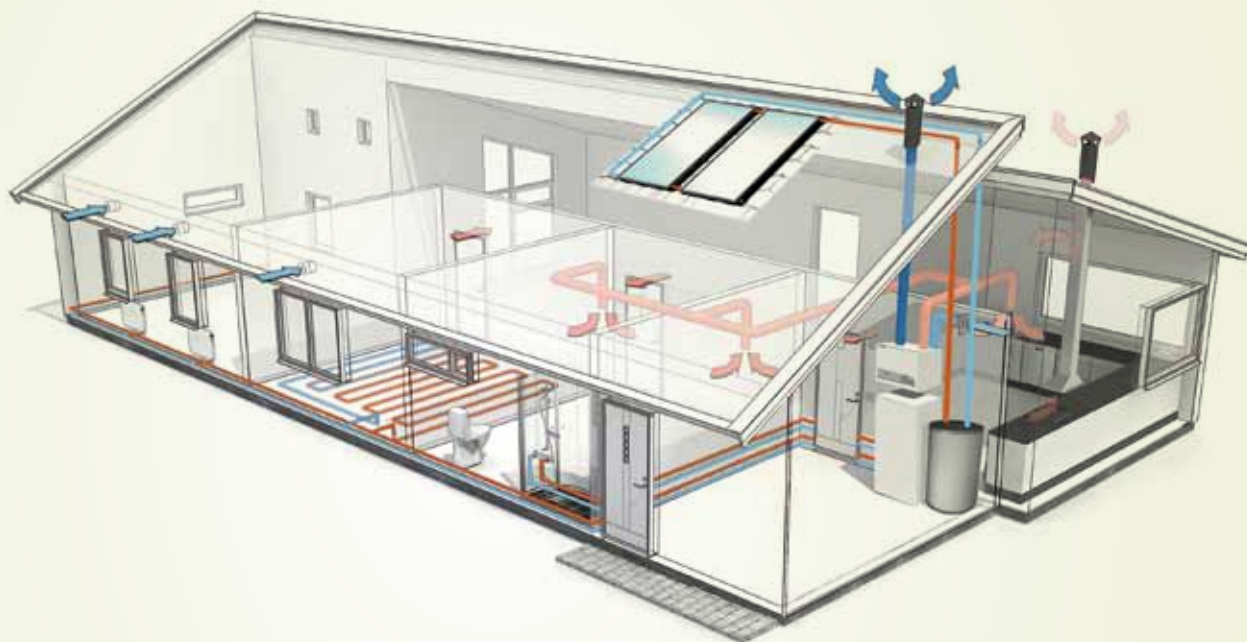
All the NIBE exhaust air heat pumps shown here can be connected with solar panels in order to exploit the cost and environmental advantages of solar energy for heating your home and hot water. The sun's energy heats up the water in the storage tank and warm water is fed into the domestic hot water and the heating system.

With the NIBE solar control system, heat from the solar panels is transferred to the storage tank. When heat is needed, the control system sets a pump in motion which transfers heat from the storage tank to the heat pump, making it available for distribution into your home.

In other words, when the temperature in the tank is high enough, the heat pump's compressor is blocked, allowing your home's heating and hot water needs to be provided by solar energy alone.



NIBE™ F640P



NIBE F640P is a combined exhaust air and outdoor air heat pump.

It extracts energy from the warm 'used' inside air, and the fresh air from outside, whenever the outdoor temperature is above -5 °C.

The energy is used for domestic heating such as water based radiators or an underfloor heating system, and for hot water.

The NIBE F640P is designed for single and two-family houses and with heat demands up to 8 kW

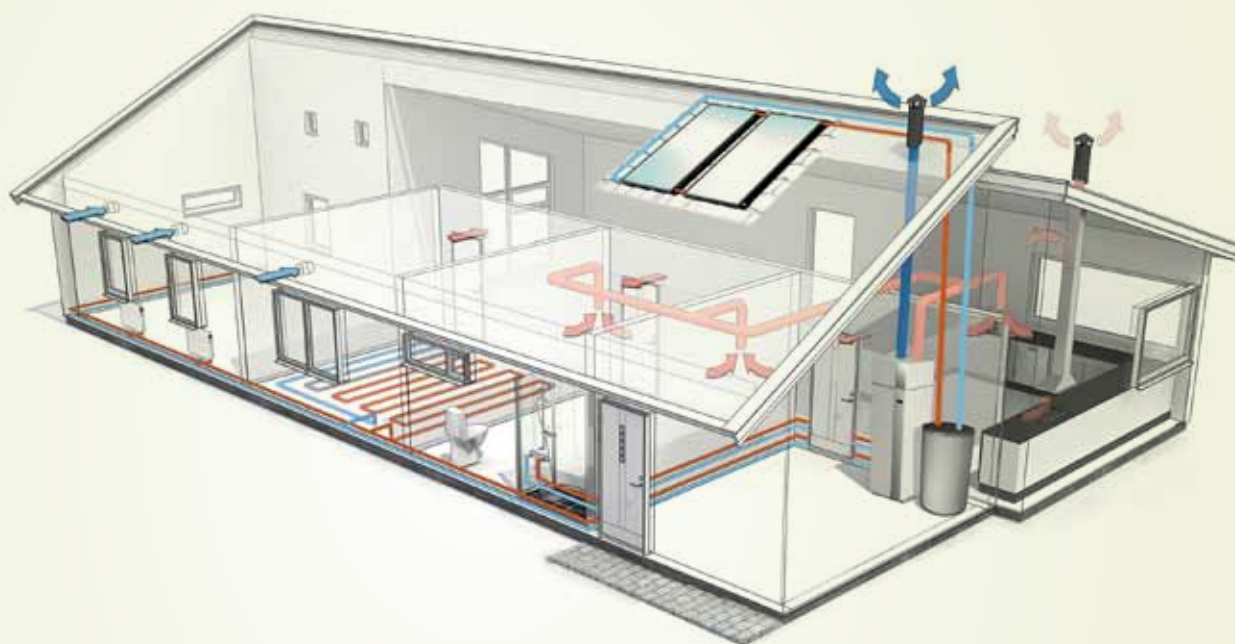
For more technical information, go to www.nibe.eu

NIBE F640P

Height /Width/Depth	2 110/600/640 mm
Net weight	210 kg
Water capacity, outer jacket	55 litres
Water capacity, cylinder	189 litres
Voltage	400 V (3-phase+N)
Refrigerant	R290 (Propane)
Compressor rated input,	1 000 W
Input immersion heater	9,0 kW
Corrosion protection	enamelled water heater
Savings/year *	7 000 - 12 000 kWh

* Value varies, as it is dependent on the energy extracted and exhaust air volume flow.

NIBE™ F370P



The NIBE F370P is an exhaust air heat pump combined with a mechanical ventilation system.

It extracts the heat from your home's exhaust air and uses the energy captured to heat domestic hot water and the water-filled radiators.

This system is designed for single and two-family houses with heat demands up to 6 kW.

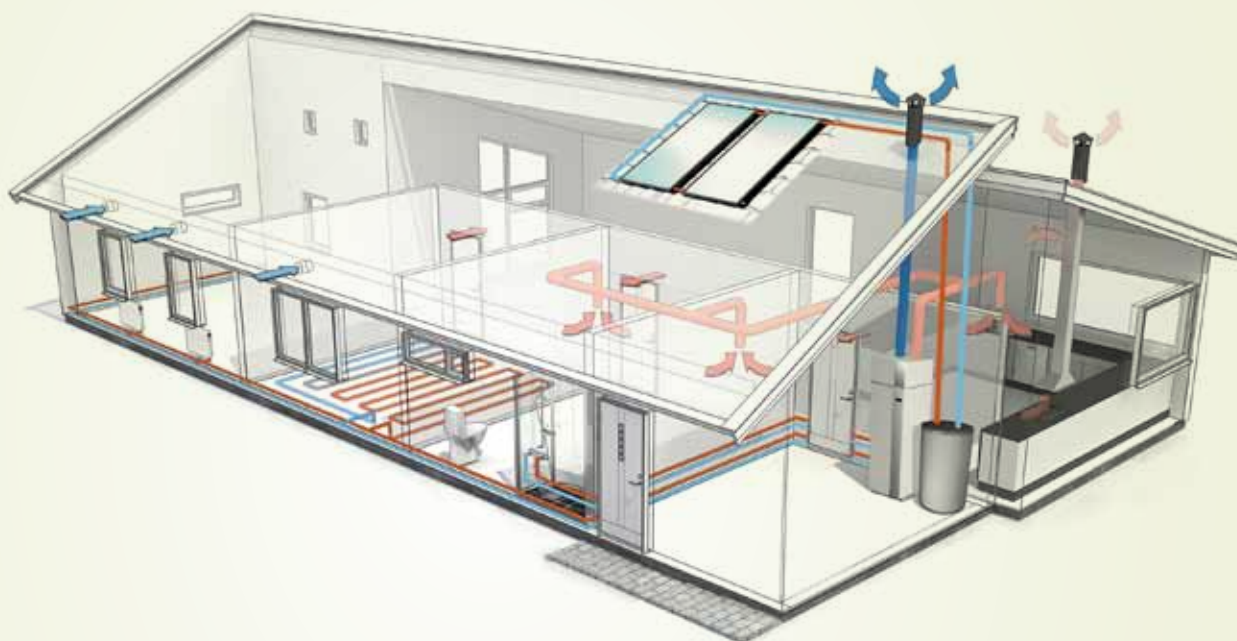
For more technical information, go to www.nibe.eu

NIBE F370P

Height /Width/Depth	2 095/600/615 mm	
Net weight	205 kg	
Water capacity, outer jacket	70 litres	
Water capacity, cylinder	170 litres	
Refrigerant	R290 (Propane)	
Corrosion protection	Copper/Enamelled/Stainless steel	
Voltage	230 V (1-phase+N)	400 V (3-phase+N)
Compressor rated input	650 W	650 W
Immersion heater rated input	8,0 kW	10,25 kW
Savings/year *	6 500 - 9 500 kWh	

* Value varies, as it is dependent on the energy extracted and exhaust air volume flow.

NIBE™ F470P



The NIBE F470P is an exhaust air heat pump combined with a mechanical ventilation system

It extracts the heat from your home's exhaust air and uses the energy captured to heat domestic hot water and the water-filled radiators. It also and heats the fresh air as it enters your home.

This system is designed for single and two-family houses with heat demands up to 6 kW.

If it were possible to switch off the heating circuit, this system would operate as a supply air and hot water tank as a result of heat recovery. Underfloor heating in areas such as bathrooms and entrance halls provides the optimal combination with exhaust air and ventilation.

NIBE F470P

Height/ Width/ Depth	2095/600/615 mm	
Net weight	200 kg	
Water capacity, outer jacket	70 litres	
Water capacity, cylinder	170 litres	
Refrigerant	R290 (Propane)	
Compressor rated input	650 W	
Voltage	230 V (1-phase+N)	400 V (3-phase+N)
Immersion heater rated output	8,0 kW	10,25kW
Corrosion protection	Copper, Enammeld/Stainless steel	
Savings/year *	6 500 - 9 500 kWh	

* Value varies, as it is dependent on the energy extracted and exhaust air volume flow.

AIR/WATER HEAT PUMPS

When to choose an air/water heat pump

An air/water heat pump is relatively simple to install since it requires no drilling or digging and you can install one even if you don't have a garden. You need electricity to drive the heat pump, but since it generates approximately four times as much energy as it uses, you will enjoy up to 70 % lower heating costs compared to a traditional fossil-fuel based system.

All the NIBE air water heat pumps shown here can be connected with NIBE solar panels in order to exploit the cost and environmental advantages of solar energy for heating your home and hot water. Combining an air/water heat pump with a solar energy solution also reduces the wear and tear on the compressor and gives it a longer life span.

With the NIBE solar control system, heat from the solar panels is transferred to the storage tank. When heat is needed, the control system sets a pump in motion which transfers heat from the storage tank to the heat pump system, making it available for distribution into your home.

In other words, when the temperature in the tank is high enough, the heat pump's compressor is blocked, allowing your home's heating and domestic hot water needs to be provided by solar energy alone.

NIBE™ F2025



NIBE F2025 is an air/water heat pump which extracts heat from the air outside your home and upgrades it in order to provide hot water and to heat your home's water-based radiators or underfloor system.

This model is especially well suited to the Nordic climate since it has an efficient scroll compressor that can operate at temperatures down to -20 °C. It also has an automatic 2-step capacity regulator for the fan (not 6kW), and an integrated intelligent control for optimum management of the heat pump. The pump is started by a start signal from another unit, return sensor or thermostat. It can be used in conjunction with most electric, oil or gas boilers and solar panels.

For more technical information, go to www.nibe.eu

NIBE F2025 Outdoor module

Sizes	Three-phase 6, 8, 10, 14 kW
Compressor	Scroll
Soft start	Yes
Fan	Two-step
Max. heat carrier temperature	58°C
Lowest outdoor temperature	-20°C
Highest outdoor temperature	35°C
Cabinet	Galvanized steel powder coated
Height/Width/Depth	1045/1200/500 mm
Weight	120/126/132/140 kg

* when connected to a solar energy system, the accessory EVP 500 is recommended.

NIBE™ SPLIT



NIBE SPLIT is a very efficient and environmentally-friendly system for heating, cooling and domestic hot water, designed to give an optimum performance throughout the year.

It extracts heat from the air outside your home and upgrades it in order to provide hot water and to heat your home's water-based radiators or underfloor system. By adding fan coils, a NIBE SPLIT system can also provide your home with cooling. It does this in accordance with the household's demand and spreads a comfortable temperature around your home.

NIBE SPLIT is suitable for both new houses and refurbishments.

One of the most advanced and efficient heating systems currently available, NIBE SPLIT is easy to install, easy to manage and has a discreet, timeless design.

For more technical information, go to www.nibe.eu

NIBE SPLIT

Operating voltage	1 x 230 V or 3 x 400 V
Working range during heating with compressor (outdoor temperature)	-20 - +43 °C
Working range during cooling (outdoor temperature)	+15 - +43 °C
Max temperature flow line, compressor only (-20 to +43 °C)	58 °C
Max temperature flow line, with immersion heater	65 °C
Domestic hot water flow at 40°C	Max 16 litres/minute

Indoor unit NIBE ACVM 270

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

Outdoor unit NIBE AMS 10

Compressor	Twin Rotary
Height/Width/Depth	845/970/370 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

Maximum distance between indoor and outdoor units is 12 metres of refrigerant pipes.

GROUND SOURCE HEAT PUMPS

When to choose a ground source heat pump

Taking advantage of a more-or-less constant temperature under the ground, a ground source heat pump is one of the most reliable and cost effective energy sources available.

If you have a large garden, heat can be extracted from a surface soil collector; when space is limited, a bore hole can be drilled into the bedrock under your land. Both options imply a one-off drilling or digging cost at installation. Electricity is required to drive the heat pump, but since it generates is approximately four times as much energy as it uses, you will enjoy up to 80 % lower heating costs compared to a traditional fossil-fuel based system.

The NIBE ground source heat pump shown here can be connected with solar panels in order to exploit the cost and environmental advantages of solar energy for heating your home and hot water. The sun's energy heats up the water in the accumulator and warm water is shared with the tank's domestic hot water container.

When the temperature in the tank is high enough, the heat pump's compressor will not start up, allowing your home's heating and hot water needs to be provided by solar energy alone.

NIBE™ F1145



Belonging to the new generation of ground source heat pumps, the NIBE F1145 is more efficient and, thanks to a highly intuitive control panel, more user-friendly than ever.

It extracts heat from one of three sources - the rock under your land, a nearby water source or the earth under your lawn- and uses the energy to heat your home's water-based radiators and hot tap water. It can reduce your energy costs by up to 80% (which means a dramatic reduction in both heating bills and CO₂ emissions). NIBE F1145 is suitable for heating single and multi-family houses and industrial buildings.

For more technical information, go to www.nibe.eu

Type NIBE F1145-	5	6	8	10	12	15	17
Supplied power*(kW)	1.1	1.3	1.7	2.0	2.5	3.3	3.8
Delivered power*(kW)	4.8	6.3	8.3	10.0	11.8	15.8	17.2
COP 0/35°C*	4.6	4.9	5.0	5.0	4.8	4.8	4.6
Supplied power**(kW)	1.1	1.4	1.8	2.1	2.7	3.6	4.1
Delivered power**(kW)	4.5	6.1	8.0	9.6	11.4	15.4	16.9
COP 0/35°C**	4.2	4.5	4.6	4.6	4.3	4.2	4.1
Rated voltage (V)	3 x 400V + N + Pe						
Min fusing (fuse type C)(A)	25	20	25	25	25	30	30
Immersion heater(kW)	9						
Refrigerant (R407C)(kg)	1.4	1.8	2.3	2.5	2.2	2.4	2.4
Max temperatur heating medium (flow/return pipes)(°C)	65/58						
Sound power level (LwA)(dB)	43						
Heigh/Width/Depth (mm)	1500/600/620						

* In accordance with EN 255 for heat source entry at 0° C / hot water flow at 35° C.
The electric input for the circulation pumps is not included.

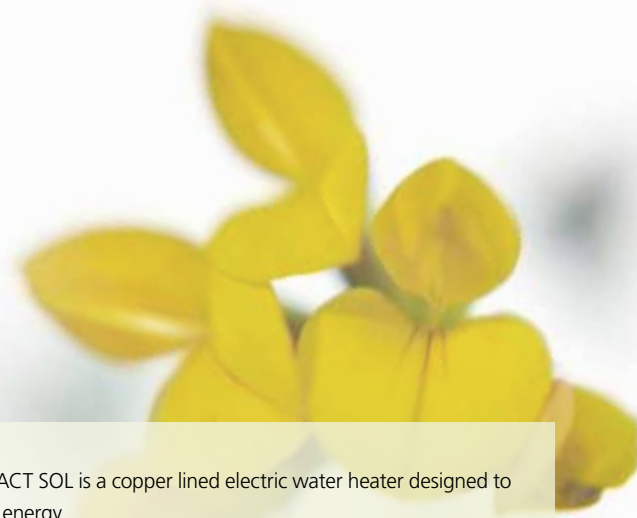
** In accordance with EN 14511 for heat source entry at 0° C / hot water flow at 35° C.
The electric input for the circulation pumps is not included.

WATER HEATERS

Choose the right tank

Solar panels do not have to be connected to the house's radiators, but can be used to provide hot water alone. This simple system makes it possible to exploit solar energy to heat your tap water throughout the year. However, another energy source will sometimes be needed to boost the water temperature to the desired level.

The size of hot water tank you choose will depend on the number of solar panels installed. You need roughly 100 litres' tank capacity for every 1 -2 m² of solar panels.



NIBE™ COMPACT SOL



NIBE COMPACT SOL is a copper lined electric water heater designed to run on solar energy.

The water tank consists of a steel vessel with a copper lining to protect it against corrosion and is insulated with CFC-free polyurethane to minimise heat loss. A internal heat exchanger connects the tank to the solar panels. The pressure vessel is designed for a maximum operating pressure of 9 bar. It comes with a complete set of valves: a mixer valve, non-return valve, vacuum valve, safety/drain valve and shut-off valve.

NIBE COMPACT SOL is designed to be installed in an upright position and is suitable for use with up to 6m² of solar panels.

For more technical information, go to www.nibe.eu

NIBE COMPACT SOL

Corrosion resistant lining material	Copper
Heat content 80 °C	22.4 kWh
Heating-up time to 45°C at 1.0/3.0 kW	11.5/4.0 hours
Heating-up time to 80°C at 1.0/3.0 kW	22.5/7.5 hours
Volume	275 litres
Net weight	125 kg
Height/Width/Depth	1710/600/615 mm
Power	1/3 kW
Fuses required at 1.0/3.0 kW	6/10 A
Voltage	400 VAC 2-phase or 230 VAC
Highest permitted temperature	95 °C
Enclosure class	IP24

NIBE™ PEL



The NIBE PEL is a water heater for indirect heating with internal heat exchanger and direct heating using an immersion heater. It consists of a container with enamel corrosion protection.

The water is heated by an external heating source through a battery circuit. Thermal insulation is provided by seamless CFC-free polyurethane, which gives minimum heat loss. The shell consists of powder coated sheet steel with ends of impact resistant polystyrene. An electric module consisting of immersion heater, thermostat/ thermal cut-out is included.

The NIBE PEL is mounted vertically hanging on a wall (connections downward) using the bracket supplied, which is screwed into place first. Keep a free area of 350 mm under the heater for maintenance and services access.

For more technical information, go to www.nibe.eu

NIBE PEL	100	150
Corrosion-resistant lining material	Enamel	Enamel
Max operating pressure	8 bar	8 bar
Steel coil heat exchanger	0.8 m ²	0.8 m ²
Height	897 mm	1247 mm
Width/Depth	470/470 mm	470/470 mm
Power	1.6 kW	1.6 kW
Voltage	230 VAC	230 VAC
Highest permitted temperature	85°C	85°C
Enclosure class	IP24	IP24

NIBE™ VPAS 300/450



NIBE VPAS is an accumulator tank that is primarily designed for connection to heat pumps in combination with solar panels.

NIBE VPAS consists of a hot water tank and a surrounding, double walled sheet steel jacket. The hot water tank is lined with copper or enamel to prevent corrosion. The insulation is polyurethane, which provides excellent heat insulation.

NIBE VPAS is equipped with immersion heater connections for the possibility of electrical addition and pocket tubes for temperature sensors to control water heating.

The insulation on NIBE VPAS can be removed, to facilitate work in confined spaces.

For more technical information, go to www.nibe.eu

NIBE VPAS	Copper	Enamel
Corrosion protection	Copper	Enamel
Volume, hot water heater	300 litres	300 litres
Volume, double-shelled	450 litres	450 litres
Net weight	315 kg	300 kg
Height (excl. feet 20 – 55 mm)	2015 mm	2015 mm
Required ceiling height	2170 mm	2170 mm
Diameter	860 mm	860 mm
Heat content at 50°C	17,4 kWh	17,4 kWh
Equivalent amount of hot water (40°C)*	370 litres	370 litres
Max. immersion heater length	750 mm	750 mm
Max. operating pressure in hot water tank	10 bar	10 bar
Max. operating pressure in double jacket	3 bar	3 bar
Highest permitted temperature	95°C	85 -90°C
Solar coil: ø 22 mm, length 9.4 m, surface 2.3 m ²		

NIBE™ QS



This water heater is designed for indirect heating i.e. where the domestic hot water is heated by another source such as an oil or gas boiler. It is made of enamel-coated steel (with an enameled coil circuit) and is fitted with an anode in order to prevent corrosion and ensure a long service life.

The QS range is completely insulated with CFC free EPS cups to minimise heat loss and reduces running costs. It features a purpose-built heating coil to provide efficient heating of tap water. This enameled-steel coil provides maximum cooling of the district or central heating water with a minimum pressure drop resulting in a highly cost-efficient operation.

The QS can be connected to district heating, solar panels or oil and gas-fired boilers. It is easy to install and maintain.

For more technical information, go to www.nibe.eu

NIBE QS	300	500
Corrosion-resistant lining material	Enamel	Enamel
Coil heating surface	1,55m ²	2,1m ²
Continuous tapping 80/10 – 45°C	1000 l/h	1265 l/h
Output primary flow 1.500 l/h 80/10 – 45°C	41 kW	52 kW
Continuous tapping 1.500 l/h 80/10 – 60°C	33 kW	43 kW
Heating time to 60°C	32 min	40 min
Volume	295 litres	495 litres
Net weight	145 kg	205 kg
Height	1587mm	1762mm
Diameter	650 mm	750 mm
Highest permitted temperature	85-90°C	85-90°C

NIBE™ QMS



Designed for indirect heating, the QMS heats your domestic hot water by means of solar energy, using district or central heating as a supplement. It has two enameled coil circuits, one for solar energy and one for heating from a secondary source, be it gas, oil burner or district heating.

These purpose-built heating coils ensure the efficient heating of tap water and guarantee you always have a plentiful supply. They are coated with enamel and fitted with an anode, preventing corrosion and giving the heater a long service life. They are also designed to provide maximum cooling of the primary side with minimum pressure drop, resulting in a highly cost-efficient operation. The QMS water heater is completely insulated with CFC free EPS cups to minimise heat loss and reduces running costs. It is easy to install and maintain.

For more technical information, go to www.nibe.eu

NIBE QMS	300	400
Corrosion-resistant lining material	Enamel	Enamel
Upper/lower coil heating surface	0,65/1,55m ²	0,65/1,55m ²
Continuous tapping 80/10 – 45°C	1000 l/h	1265 l/h
Output primary flow 1.500 l/h 80/10 – 45°C	41 kW	52 kW
Continuous tapping 1.500 l/h 80/10 – 60°C	33 kW	43 kW
Heating time to 60°C	32 min	40 min
Volume	295 litres	390 litres
Net weight	145 kg	205 kg
Height	786mm	786mm
Diameter	650 mm	725 mm
Highest permitted temperature	85-90°C	95-90°C

SOLAR ENERGY COMPONENTS

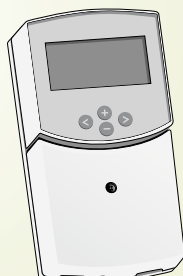
NIBE Solar controller

Prioritise the 'greenest' and cheapest energy source

NIBE solar controller steers the transfer of heat from the solar panels* to the storage tank, and then transfer of heat from the storage tank into the heat-pump according to the present need of energy.

It is designed to ensure an optimal interplay and function of the NIBE combined Solar/Heatpump system. The solar energy is always prioritised.

* Except for the NIBE F1145, F1245, F370, F470 heatpumps which have integrated solar controller (accessory relay box is needed)



Solar pumpstation

Connects the solar panels and storage tank

Simplifying the installation and commissioning process of your solar energy system the solar station contains all the valves needed to connect the solar panels to the accumulator tank. And thanks to the built in air vent, the system gets a reliable function.

The pump used is a low energy pump that further minimizes the operating cost of your solar system.



Storage tank with solar coil

Stores the heat until its needed

The accumulator tank stores the heat from the sun until you need it for either hot tap water, or to heat your water-filled radiators or underfloor heating system.

The storage tank is insulated in order to minimize heatlosses.

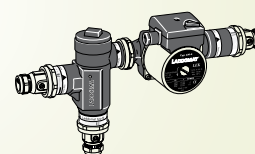


Charging unit

Protects and optimises the charging process

The charging unit is needed in order to protect the heat pump from getting exposed to dangerously high temperatures when heat is transferred from the storage tank to the heatpump.

And important, it is also optimising the layering in the tank.



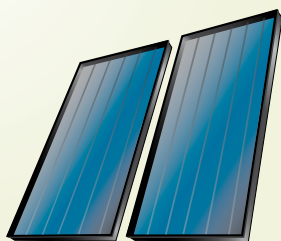
SOLAR PANELS

Collects the solar energy from your roof for further transport to your accumulator tank.

The flat solar panel

A highly popular type of solar panel.

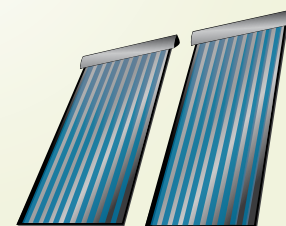
- Its often robust design gives a long life time.
- Suitable for normal installations.
- Lots of value for the money.
- Especially suitable for low to middle range temperature systems and not very cold climates.



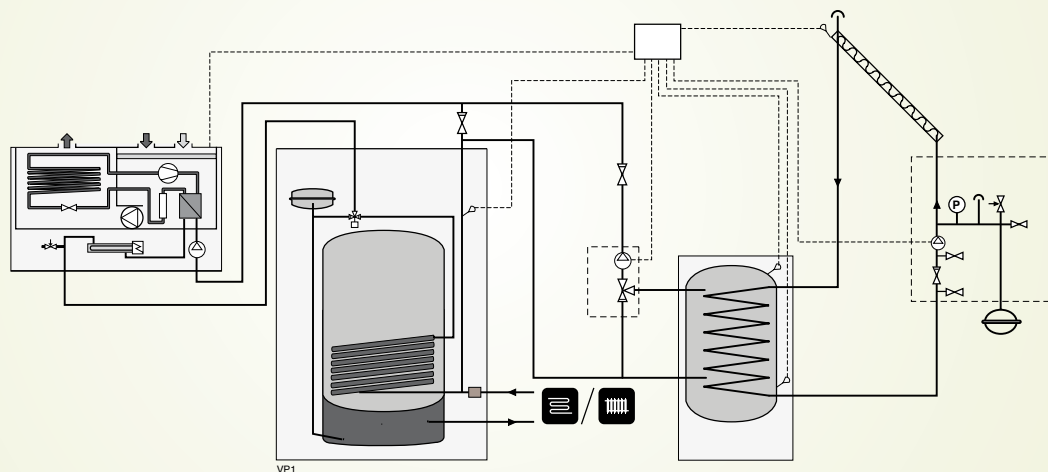
The vacuum tube panel

Very good performance in areas with cold climates.

- More efficient at higher working temperatures as in district heating systems and industrial applications.
- More even between good and bad days.
- More even between summer and winter.
- Safer in windy areas if the panels are raised above the roofs angle.
- Some vacuum tubes need a minimum angle to function.
- Are not losing so much on roofs not well oriented to the sun.

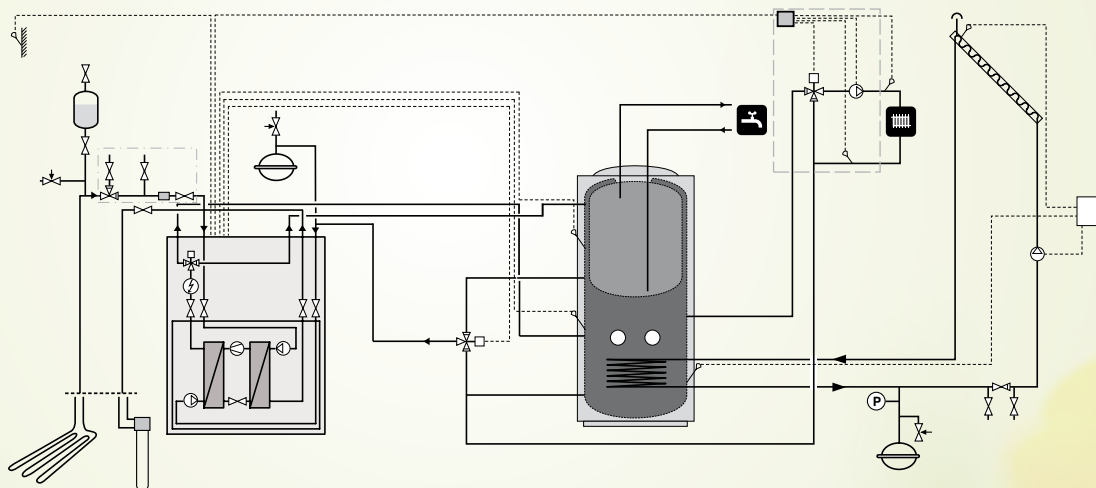


TWO DIFFERENT NIBE HEAT PUMP / SOLAR ENERGY SOLUTIONS.



Exhaust air heat pump NIBE F640 with solar energy for heating and hot water.

Solar panels heat up the accumulator tank. When the temperature in the tank is high enough, the energy can be used either to heat up the domestic hot water or the heating system. When the temperature is even higher, the compressor is blocked enabling all the energy for heating to be provided by the sun.



Ground source heat pump NIBE F1145 with solar energy for heating and hot water

When the solar panels provide a high enough temperature, both the house's heating system and hot water can be heated by the sun on its own. In that case, the heat pump is stopped automatically. When more energy is needed, the sun can still contribute, as long as the temperature from the solar panels is high enough.

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.

In the meantime the price 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.



Combine two clean, renewable energy sources and get the best of both worlds.

There are a number of reasons for this

Neither a heat pump nor a solar energy system uses any combustion process or other energy to generate heat. It simply uses 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 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. And the solar panels require almost no electricity at all. While the exact energy saving varies according to what you benchmark against, it generally measures between 60% and 80%.

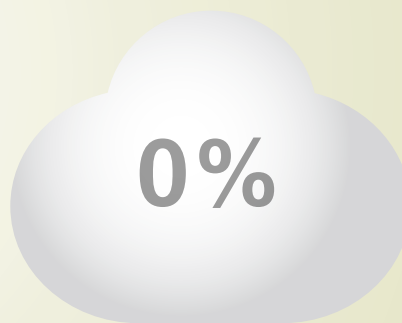
Another interesting point to consider is that heat pumps and solar panels, like every other manufactured item contains what we call "embedded energy". That is, the energy required to make the product and transport it from the factory to the site where it will be used. By continually improving its own 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 solar energy/ heat pump system 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 or hydro energy?

See www.nibe.eu for more information.



CASE

AN ENVIRONMENTALLY SUSTAINABLE HEATING SYSTEM
WHICH MAKES YOU FEEL GOOD, INSIDE AND OUT!



The background

When Jonas Fröberg bought his family home near Karlskrona in southern Sweden, it had a floor area of only 80 square metres and needed extensive renovation. The original wooden building from 1938 was only intended as a summer house, so it had an antiquated electric boiler for hot water and an inefficient heating system running on direct electricity.

Over two years, the Fröbergs converted the summer house into a permanent home, extending the living space to 200 square metres over two levels and installing proper insulation and energy-saving windows. During the renovation, they faced important choices about what kind of energy source would supply their home's heating and hot water. Their main concern was to install a system with the lowest possible energy consumption and environmental impact. Fröberg felt strongly that an investment in a complete, efficient and environmentally sustainable system was the right way to go.

Solution

The Fröbergs opted for the NIBE F2025 14 kW air/water heat pump, together with solar panels. Combining solar panels with a heat pump allows them to take advantage of solar energy whenever it's available, without being fully dependent on it. The owners also chose a powerful compressor in order to extract as much heat as possible from the outdoor air in winter. When the weather is mild, such a powerful compressor requires a big water tank to work properly. Hence the choice of the NIBE EVP 500, an all-in-one module which provides hot water for the heating system in the whole house, as well as hot tap water.

Results

The NIBE F2025 can reduce energy costs by as much as 65%. In the Fröbergs' home, this means an annual consumption of less than 10 000 kWh per year compared to 25 000 kWh with traditional electric heating for a house this size. In addition, the solar panels cover all hot water requirements for half the year, while radiators aren't needed.

On grey days in winter, when the solar panels can't provide enough heat, the compressor sets in motion; when it gets even colder and the heat pump can't provide enough energy, electricity is still available as back up. The sun replaces some of the energy that would have been pumped by the compressor, so for every kilowatt of energy used to run the heating system, 4 or 5 are produced.

The Fröbergs' commitment to the environment goes even further. *"I buy the electricity needed to drive the heat pump from a nearby wind turbine, which makes my home into a carbon neutral system," says Jonas.*

Find out more about our air/water heat pumps on www.nibe.eu

Heat from the sun, the air,
the ground or the lake?

It's all natural!





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. Heat pumps and a wide range of other heating products that meet the needs of the European markets were later added to the mix.

Nowadays, NIBE is a leading player in both heating and cooling systems around Europe. We strive to offer innovative solutions that not only save energy but which also reduce CO₂ emissions. Together with our customers, we're working towards a more sustainable future, one home at a time.



A new generation of heat pumps
DESIGNED FOR EARTH

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

Our products are designed to USE THE EARTH

The main energy sources for NIBE heating systems are the earth, the sun, the ambient air or a water source near your home – one or more of which occur naturally all over the planet and are provided free by Mother Earth.

Our products are relevant ALL OVER THE EARTH

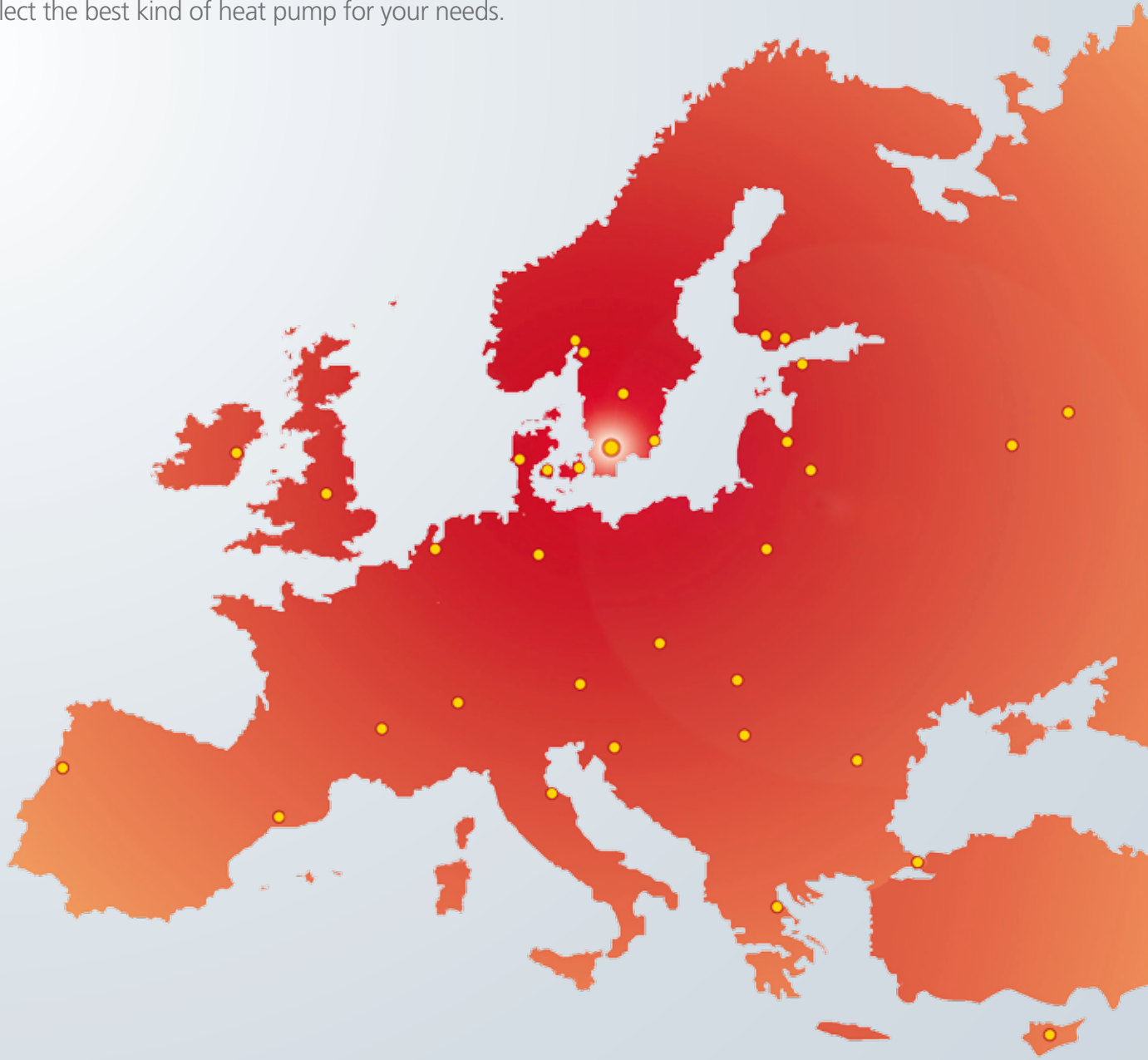
Since we now offer a system with both heating and cooling functions, you can use a NIBE heating system anywhere, regardless of your geographic location.

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.

YOUR NEXT STEP?

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



This brochure is a publication from NIBE. All product illustrations, facts and specifications are based on current information at the time of the publication's approval. NIBE makes reservations for any factual or printing errors in this brochure.

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