



Exhaust Air Heat Pumps



MADE IN SWEDEN



NIBE FIGHTER 360P

The Swedish heat record

The Swedish heat record of +38°C was set in 1947. A few years later, in 1952, Nils Bernerup founded the company that was to become Sweden's leading supplier of domestic heating products. Initially the company manufactured water heaters and copper pressure vessels, and in the 1970s these were supplemented by electric boilers, followed by heat pumps. Since the beginning, NIBE has managed to break a number of its own "heat records". Not least of all by continuously leading developments to produce increasingly efficient products for heating homes and water.

A crystal clear winter's night

The Nordic climate is hardly famous for its temperature records. It is better known for cold, crystal clear winter nights. The fact that NIBE is also the leading player in heating solutions in the rest of Europe is partly due to the fact that our heat pumps are developed, tested and manufactured to cope with the very coldest Swedish nights.

NIBE is based in Markaryd, Sweden, and brings a 60-year-old tradition of unyielding care and quality to everything it does. From the outstanding engineering used in constructing our pumps to the software used to control them, we make attention to detail and quality our watchword. Each heat pump is put through stringent operational tests before delivery.

The complete manufacturing process is ISO certified: ISO 9001 for quality and ISO 14001 for environmental standards.

Recycle your ventilation air

An exhaust air heat pump from NIBE allows you to recycle the heat from your own house's ventilation air. This means that about half of your energy consumption is free. You also have a safe, problem-free, environment-friendly heating solution with a long working life.

NIBE – leaders in exhaust air heat pumps

NIBE is the market leader in exhaust air heat pumps, probably because we developed them to cope with the Nordic climate. But perhaps also because so many installers and home owners appreciate the high quality that we strive to maintain.

At NIBE we hope you enjoy your choice of heating solution. And we hope that we can help you set a new record, for low-cost heating for your home.

Solutions to match your situation

The situations described below give you an idea of which of NIBE's various heating solutions would be best suited to your house. There are, of course, many factors to consider, for example, how big the house is that you want to heat, whereabouts in the country you live, whether you're building a new house, etc. The easiest way to find the answer is to phone and ask one of the many installers who work with NIBE's products.

"I'm building a new house and I want a smart heating solution."

In newly-built houses it is important that the indoor air is replaced often and that as little energy as possible is used per square metre.

The most common, and often the most cost-effective solution is to recycle the energy from the ventilation air and to install an exhaust air heat pump.

When building larger houses, it may be best to have a ground-source heat pump supplemented by NIBE's FML exhaust air module.

As well as the choice of an exhaust air heat pump, you have lots of different heating systems to choose from: water radiators, under-floor heating in concrete or under-floor heating in wooden joists. The choice you make is, of course, a question of cost, opinion and taste. Combine the systems in whichever way you want – NIBE's heat pumps can deal with any solution.

You can find more details about our exhaust air heat pumps and heating systems for new buildings at www.nibe.eu.

"I've already got an exhaust air heat pump, but I need a new one."

Almost half of the exhaust air heat pumps we sell are to replace an existing one. This means that we at NIBE have both products and specialist expertise to provide you with an exhaust air heat pump that matches your exact needs. In almost 100 per cent of cases we can offer a replacement product, whatever the model and make of your old heat pump.

"I'm thinking about replacing my boiler for oil, electricity or wood."

If you already have water-based radiators or under-floor heating at home, there is much to be said for you switching to ground-source heating. This means that you install a heat pump that collects heat from the bedrock via a bore hole. You can also collect heat

via a hose buried in the ground or laid at the bottom of a lake.

NIBE has heat pumps to suit all needs. To calculate what capacity you need, we base our considerations on the total energy needs of the house during the very coldest days.

However, if your house is smaller than 100 square metres, it will not be profitable for you to switch to ground-source heating.

In your case, NIBE's air/water heat pump is probably a better option.

"I want to keep my boiler, but cut my costs."

If you have a boiler fired by oil, electricity or wood, you also have a water-based heating system. Just keep the boiler you already have and supplement it with a NIBE air/water heat pump.

This type of a heat pump draws its heat from the air and then generates sufficient energy to heat your radiators or your under-floor heating. Incidentally, NIBE's air/water heat pump works at temperatures down to -20°C .

The result of installing an air/water heat pump will be a significantly reduces your heating costs for a reasonable investment. You can find further details in our separate brochure or online at www.nibe.eu

"The boiler needs replacing, ideally with an air/water heat pump."

Do you want to replace your old oil, electricity or wood -fired boiler with an air/water heat pump? This would be combined with an indoor module, a small electric boiler, which supplements the system when the outside air is too cold. But as already mentioned, an air/water heat pump still generates heat even at -20°C .

If you choose the NIBE FIGHTER 2020 heat pump, you combine it with one of the indoor modules NIBE VVM 300, NIBE EVP 270 or NIBE EVP 500. All models also satisfy the house's hot water needs.

Our powerful air/water heat pump, combined with one of these specially configured modules, gives you the most efficient combined solution on the market, and you can cut your heating costs by up to 65%. Talk to NIBE installer or read more at www.nibe.eu.



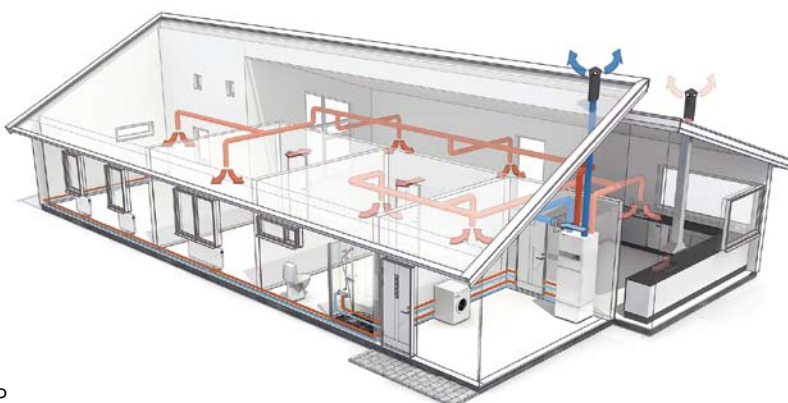
NIBE FIGHTER 360P

Solutions for various heating systems



NIBE FIGHTER 310P & FIGHTER 360P

For houses with heating systems consisting of water-based radiator circuits (dimensioned for low temperatures) or under-floor heating. The air in the house is conveyed from rooms with outdoor air diffusers to rooms with exhaust air diffusers. The circulating air is drawn into the house's duct system. The heated air in the room is conveyed to the heat pump, where the energy in the air is extracted, thus allowing the heat pump to supply the whole house with hot water and heating to the radiator system.



NIBE FIGHTER 410P

For houses with heating systems where some of the heat supply is provided by heated supply air. The air in the house is conveyed from rooms with supply air diffusers to rooms with exhaust air diffusers. The circulating air is drawn into the house's duct system. The heated air in the room is conveyed to the heat pump, where the energy in the air is extracted, thus allowing the heat pump to supply the whole house with hot water and heating to the supply air and radiator system.



NIBE FIGHTER 640P

For houses with heating systems consisting of a water-based (low-tempered) radiator system or an under-floor heating system and that combines exhaust air and outdoor air. The energy is recycled from the ventilation air and from the outdoor air, and is then supplied to the heating system and/or the water heater.

Energy recycling

with every breath

The technology in air/water heat pumps is based on ventilating your house. The heat pump then recycles the heat energy in the ventilation air in order to heat the hot water and the heating system. You are thus reusing old, previously used air.

Put simply, this is what happens: a fan draws the ventilation air from all wet areas, like the bathroom, in your house. This forms slight negative pressure, which causes air from other rooms to be drawn into the wet areas. New outdoor air is drawn in through valves in the external walls, with the effect that all of the rooms in the house are ventilated.

If you only want to pay half

Let's say you have a house with an energy requirement for heating and hot water of around 15,000 kWh/year. With one of our exhaust air pumps, you only pay half of the cost of heating and hot water compared with a conventional electric boiler with mechanical exhaust air ventilation. The rest is free.

The exhaust air pump is an absolute must for newly built, well-insulated houses. It is important that the indoor air is replaced often and that little energy is used per square metre.

NIBE the market leader

The most common, simple and profitable solution, according to current building methods, is to install an exhaust air heat pump. We are of course proud that the brand most commonly used is NIBE. Whether building a new house or replacing the pump that is already there.

If you want to combine exhaust air and outdoor air, you can install an exhaust air pump with a larger compressor – the NIBE FIGHTER 640P. This will give you even lower energy consumption.

Additional opportunities

Maybe you're building a large house, and you really want to maximise both ventilation recycling and economical heating production. In that case, you can choose an exhaust air model supplemented with a ground source heat pump – both from NIBE. We have everything you need.

Another possible combination is to supplement the exhaust air heat pump with a fireplace from NIBE. As you relax by the cosy, open fire, the electricity meter slows down even more.

At NIBE we're always happy to advise you on the best, most economical solution.

The result is the main thing

The principle behind exhaust air heat pumps is basically very simple. But as we have developed the technology down the years, we have created increasingly sophisticated and advanced products. In parallel with this, our heat pumps have become increasingly simple to install and use. In effect, they look after themselves, year after year.

What NIBE can offer now is a level of performance that guarantees both safe operation and astonishing savings. In terms of both heating costs and the environment. We have the right solution for all needs and for all houses.

The Climate-friendly alternative

Awareness of the greenhouse effect has grown in recent times, with alarming reports and increasing concern all over the world. At NIBE we are noticing that interest in our heat pumps no longer relates solely to the major savings they generate. People are also aware of the long-term benefits for the environment.

In this context, it is of course pleasing that the technology used to heat houses using heat pumps is best for the environment

If all single-family houses in the Nordic region were to install a heat pump, total energy consumption would fall by as much as 43%. This is the conclusion of a survey

conducted by SIS Miljömärkning. Furthermore, nitrogen oxide emissions would fall by almost 30%, hydrocarbon emissions by 80% and carbon dioxide emissions by 36%.

No combustion

How this is achieved is simple. In contrast to biofuel and district heating, a heat pump does not use any combustion process or other energy to generate heat. However, the heat pump technology is not entirely without environmental impact. We have to use electricity to extract the heat energy from the air, the bedrock, the earth or the lake. But in comparison with other "transport costs", this is a relatively modest impact.

Long-term development

The more people who use heat pumps, the more electricity we can buy from clean sources. We avoid relying on coal, oil and woodchip-fired power plants to provide our electricity needs.

At NIBE, we have a continuous research and development process that aims to further minimise the need for additional energy sources in our heating systems.



Advanced technology – easy to use



The exhaust air heat pumps are delivered complete with all valves, shunts, reversers, expansion vessels, etc.

Integrated water heater

Powerful ventilation capacity in all models

The FIGHTER 360P is the only exhaust air heat pump on the market that you can communicate with remotely, thanks to our RCU accessories

Contains the refrigerant propane, which is a natural gas that has no impact on the greenhouse effect or the environment. NIBE is unique in having used this environment-friendly method since 1997.

Backlit LED display. Simple to use and easy to understand.

Many of our exhaust air heat pumps can be docked with other heat sources such as solar, pellets, wood, district heating

Integrated electric cartridge for extra hot water and reserve setting

White lacquered, scratch-resistant cabinet in timeless design that fits into most environments



NIBE FIGHTER 100P

| | |
|-----------------------------|----------------|
| • Ventilation | Yes |
| • Integrated water heater | Yes |
| • Recycling | Yes |
| • Heat for heating system | No |
| • Electrical connection | Single phase |
| • Electric cartridge output | 1.5 kW |
| • Refrigerant | R290 (propane) |

Complete heat pump that supplies hot water, ventilation and recycling, and is the most common solution for houses heated by electric radiators.

The NIBE FIGHTER 100P has an integrated fan that ventilates and recycles the energy in the ventilation air and produces hot water. The water heater has a capacity of 225 litres and anti-corrosion protection from maintenance-free copper. The condenser in the water heater has dual walls for maximum safety. Insulation is made from moulded, freon-free polyurethane, which produces low heat losses.

The upper and lower front panels are easy to remove for easy access to the filter and valve fittings. To guarantee hot water comfort in connection with high levels of use, the FIGHTER 100P is fitted with an electric cartridge.

Height: 1,930 mm Width: 600 mm Depth: 615 mm



NIBE FIGHTER 120

| | |
|---------------------------|--------------|
| • Ventilation | Yes |
| • Integrated water heater | No, separate |
| • Recycling | Yes |
| • Heat for heating system | No |
| • Electrical connection | Single phase |
| • Refrigerant | R134a |

A heat pump in two parts that supplies hot water, ventilation and recycling, and is designed for houses heated by electric radiators.

The NIBE FIGHTER 120 has an integrated fan that ventilates and recycles the energy in the ventilation air and produces hot water. The VPB water heater is free-standing with a volume of 150 or 300 litres, and stainless steel anti-corrosion protection.

FIGHTER 120

Height: 600 mm Width: 600 mm Depth: 456 mm

VPB 150 I

Height: 840 mm Diameter: 600 mm

VPB 300 I

Height: 1,550 mm Diameter: 600 mm



NIBE FIGHTER 200P

| | |
|---------------------------------------|----------------|
| • Ventilation | Yes |
| • Integrated water heater | Yes |
| • Recycling | Yes |
| • Heat for part of the heating system | Yes |
| • Electrical connection | Single phase |
| • Electric cartridge output | 1.5 - 3.0 kW |
| • Refrigerant | R290 (propane) |

Complete heat pump that delivers hot water, ventilation, recycling and heat to part of the heating system.

For houses where heating is supplied by small floor coil or individual water radiators and the rest by electric radiators.

The NIBE FIGHTER 200P has an integrated exhaust air fan, electric boiler and water heater with corrosion protection made of maintenance-free copper.

Energy is recycled from the ventilation air and is delivered to the boiler section. The heat pump ventilates the house, heats the hot water and delivers heat to smaller radiator/under-floor systems or supply air units.

A 1.5 kW electric cartridge is connected if the output from the heat pump is insufficient. The insulation consists of moulded, freon-free polyurethane, which produces low heat losses.

Height: 2,095 mm Width: 600 mm Depth: 615 mm



NIBE FIGHTER 310P/315P

| | |
|-----------------------------|---------------------------|
| • Ventilation | Yes |
| • Integrated water heater | Yes |
| • Recycling | Yes |
| • Heat for heating system | Yes |
| • Electrical connection | Single phase, three-phase |
| • Electric cartridge output | 8 - 13.5 kW |
| • Refrigerant | R290 (propane) |

Complete, efficient heat pump that delivers heat, hot water, ventilation and recycling. For both new installations and replacement pumps in houses with a living area of 80 – 180 m² and water-based radiator circuits (dimensioned for low temperatures) or under-floor heating.

Integrated exhaust air fan, electric boiler and water heater with copper anti-corrosion protection. Energy is recycled from the ventilation air and is delivered to the boiler section. The unit ventilates the house, delivers radiator heating and heats the hot water.

The NIBE FIGHTER 310P is controlled by a microprocessor that enables the heat pump always to be utilised as efficiently as possible. The microprocessor also controls the automatic shunt and circulation pump. Current temperatures and preset values are clearly displayed.

Insulation is made from moulded, freon-free polyurethane, which produces low heat losses. Because of its unique design, other heat sources can easily be docked with the FIGHTER 310P.

Height: 2,095 mm Width: 600 mm Depth: 615 mm



NIBE FIGHTER 360P

| | |
|-----------------------------|---------------------------|
| • Ventilation | Yes |
| • Integrated water heater | Yes |
| • Recycling | Yes |
| • Heat for heating system | Yes |
| • Electrical connection | Single phase, three-phase |
| • Electric cartridge output | 13.5 kW |
| • Refrigerant | R290 (propane) |
| • Accessories - RCU | Yes |

Complete, highly efficient heat pump that delivers heat, hot water, ventilation and recycling. The pump is suitable for houses of between 100 – 240 m².

Contains electric boiler, heat pump and maintenance-free water heater and is designed for a water-based (low-tempered) radiator system or under-floor heating system. The energy is recycled from the ventilation air and is then supplied to the heating system and/or the water heater.

The NIBE FIGHTER 360P is fitted with a larger compressor than the 310P model. This, combined with optimal control, allows the compressor to work at the most favourable temperature conditions at any given time, which produces an increase in energy savings of 5–10% compared to the FIGHTER 310P.

The FIGHTER 360P has a user-friendly control panel with an informative plain text display.

Height: 2,095 mm Width: 600 mm Depth: 615 mm



NIBE FIGHTER 640P

| | |
|-----------------------------|----------------|
| • Ventilation | Yes |
| • Integrated water heater | Yes |
| • Recycling | Yes |
| • Heat for heating system | Yes |
| • Outdoor air | Yes |
| • Electrical connection | three-phase |
| • Electric cartridge output | 9.0 kW |
| • Refrigerant | R290 (propane) |

Complete, highly-efficient heat pump that delivers heat, hot-water, ventilation and recycling.

The NIBE FIGHTER 640P is a combined exhaust air/outdoor air pump with integrated DC fan, electric boiler and water heater with enamel anti-corrosion protection. It is designed for a water-based (low-tempered) radiator system or under-floor heating system.

The energy is obtained from the ventilation air and from the outdoor air, and is then supplied to the heating system and/or the water heater. The combination of outdoor air and exhaust air produces a greater compressor output, which generates a saving of up to 20% more than conventional exhaust air pumps.

The design of the ventilation section produces a very low noise level and high ventilation capacity. The unit can be split, which makes installation easier when there is a low ceiling. The FIGHTER 640P is suitable for houses between 100 – 200 m².

Height: 2,110 mm Width: 600 mm Depth: 640 mm



NIBE FIGHTER 410P

| | |
|-----------------------------|---------------------------|
| • Ventilation | Yes |
| • Integrated water heater | Yes |
| • Recycling | Yes |
| • Heat for heating system | Yes |
| • Supply air | Yes |
| • Electrical connection | Single phase, three-phase |
| • Electric cartridge output | 8.0 - 9.0 kW |
| • Refrigerant | R290 (propane) |

Complete heat pump that delivers heat, hot water, ventilation, heated supply air and recycling.

Designed for new installations and replacement pumps in detached houses or equivalent of up to 200 m² where some of the heat is covered by using heated supply air. The NIBE FIGHTER 410P has integrated fans, an electric boiler and water heater with corrosion protection made of maintenance-free copper. Energy is recycled from the ventilation air and is delivered to the boiler.

The heat pump ventilates the house, heats the supply air, delivers heat to the radiators/under-floor heating and heats the hot water. The insulation consists of moulded, freon-free polyurethane, which produces low heat losses.

Thanks to its unique design, other heat sources can easily be docked with the FIGHTER 410P. The FIGHTER 410P can also be used in extremely energy-efficient houses (houses with no heating system) with the RG10 room sensor without being connected to a water-based heating system.

Height: 2,095 mm Width: 600 mm Depth: 615 mm



NIBE FLM 30/40 & FIGHTER 1217/1240

| | |
|-----------------------------|-------------|
| • Ventilation | Yes |
| • Integrated water heater | Yes |
| • Recycling | Yes |
| • Heat for heating system | Yes |
| • Ground source heating | Yes |
| • Electrical connection | Three-phase |
| • Electric cartridge output | 9.0 kW |
| • Refrigerant | R407C |

Exhaust air module and ground source heat pump represent an efficient combination that provides both low heating costs and the right ventilation.

There are instances where an exhaust air module combined with an efficient ground source heat pump (which extracts heat from rock or surface soil) is an excellent solution from an overall financial perspective, even though the investment is greater than for an exhaust air heat pump installation. In relation to the building cost of the house as a whole, the additional cost is still fairly modest, while the future savings in terms of heating costs are significant.

If you choose a ground source heat pump from NIBE, you can expect a heating effect (COP) of 5 – that means that for every 1 pound of energy you pay for, you get out 5! Another major benefit in choosing this solution from us at NIBE is that you can have the heat pump designed according to your house's energy needs, and are not forced to buy a standard solution.

Height: 2,150 mm Width: 600 mm Depth: 625 mm

How much you can save

Detached house heated by NIBE FIGHTER exhaust air heat pumps

(Household electricity added at approx. 5,000 kWh/year)

| Saving | FIGHTER 100P | FIGHTER 200P | FIGHTER 310P | FIGHTER360P | FIGHTER 640P | FIGHTER 410P |
|--------------------|---------------|-----------------|---------------|---------------|----------------|---------------|
| Saving (kWh/year)* | 1,800 - 3,500 | 4,000 - 7,500** | 6,000 - 8,500 | 6,500 - 9,500 | 7,500 - 12,000 | 6,000 - 9,000 |

* This value varies, depending on energy used and exhaust air flow ** A greater saving can be achieved under favourable conditions

Accessories

When you want to control your heat pump remotely

If you want to manage or control your heating system remotely via the Internet or by text message, all you have to do is install our NIBE RCU 10 communica-

tion module. Wherever you are in the world, you can raise or lower the room temperature, generate extra hot water or just check that everything is working as it should. The RCU module can also raise an alarm if there is a problem. For use only with the NIBE FIGHTER 360P and NIBE FIGHTER 1240. Read more about this at www.nibe.eu.

The Olofsson family's house has been planned to the smallest detail

The house in Osby enjoys a view down over the lake. Lars Olofsson explains that he and his wife wanted to have everything sorted out sooner rather than later. The children have moved out, and it's not long now until retirement becomes a reality.

"We decided to build a house that provides us with the lowest possible cost of living and that has been planned down to the smallest detail. Now that we'll have the time, we want to be able to afford to travel and to live comfortably."

The result is a house covering 107 square metres, with an open-plan solution and high accessibility. Just what is needed – no more, no less. But with bright, open areas and a nice feeling of space.

"The energy cost was important. I had a look at nibe.se, which was really helpful with choice and costings. There was no doubt that the best option for us was an exhaust air heat pump. We supplement this with an architect-designed open fireplace with an energy cartridge."

One year on, Lars can confirm that the costings were accurate. The exhaust air heat pump means that the house only consumes 12,000 kWh/year for heating, water and household electricity.

"It's a nice feeling, knowing that you've minimised what is otherwise a major cost. The actual pump takes care of itself over there in the shed. It even lets me know when I have to clean the filter,

about four times a year. That's all I have to keep track of," concludes Lars with a satisfied smile.



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