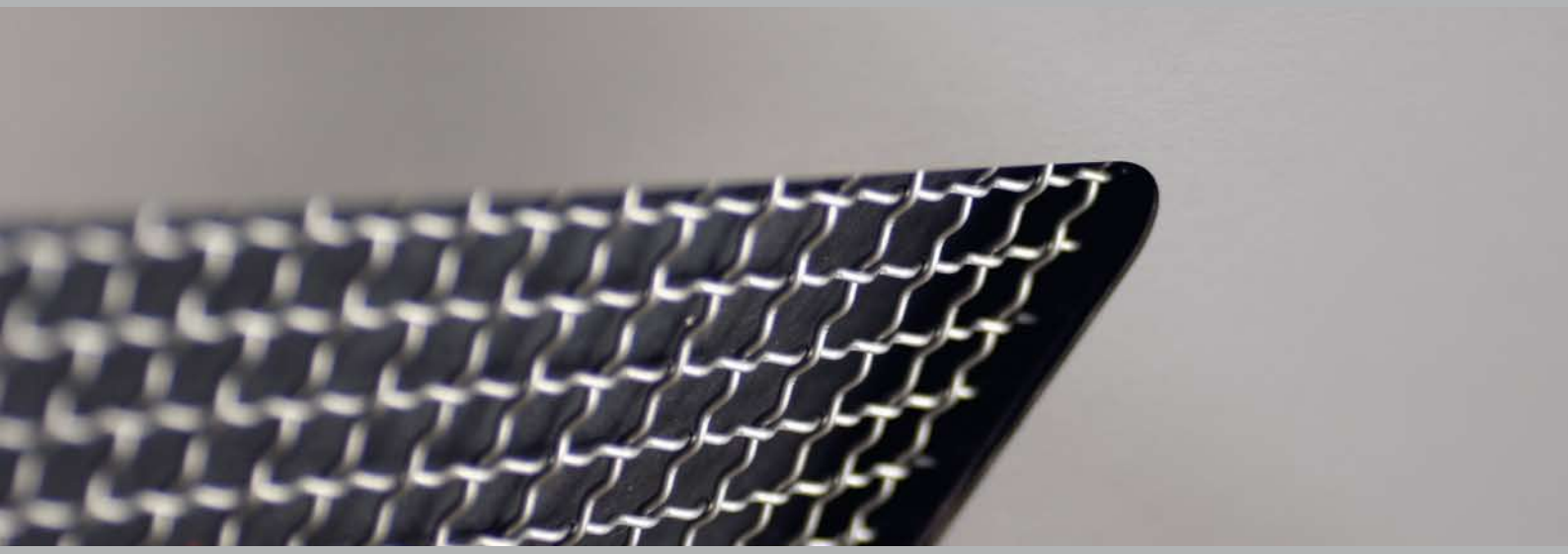
NIBE

Air/Water Heat Pumps



MADE IN SWEDEN

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 temperatur 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. For example, an air/water heat pump from NIBE works at temperatures as low as -20°C.

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.

30 years' experience of heat pumps

The technology behind using heat pumps for home and water heating is relatively new. Demand is increasing steadily, along with higher energy prices and greater environmental awareness. International players have recently started manufacturing, but NIBE is still ahead of the competition. As well as 30 years' experience of the development and manufacture of heat pumps, we have a significant technological lead.

Reduce your heating costs by up to 65%

As you probably know already, an air/water heat pump from NIBE will dramatically reduce your heating costs by up to 65%. It will also give you a safe, problem-free, environment-friendly heating solution with a long useful life. The heat pump doesn't pay for itself in the first month, but you will notice it the first month because your heating bill will be lower.

The benefits of air/water heating from NIBE

Saving money and helping the environment are not the only benefits of an air/water heat pump from NIBE. The heat pump is easy to install – you don't need to drill or dig, it's easy to manage, and has a new, stylish design that suits most environments. The NIBE F2025 is fitted with a two-step fan that generates less noise than most air/water heat pumps on the market.

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 thinking about replacing my boiler with 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 seperate 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 F2025 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 system 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.

"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.

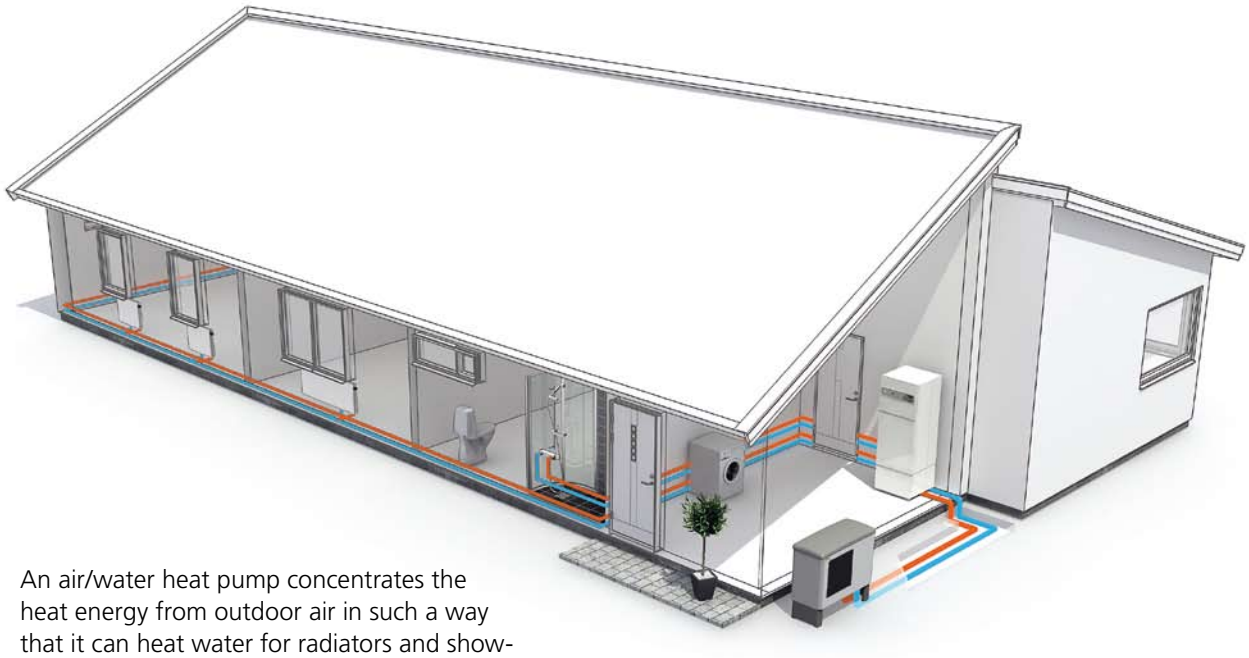
You can find more details about our exhaust air heat pumps and heating systems for new buildings at www.nibe.eu.

"I can't install ground-source heating in my house."

Maybe you live in an area where you're not allowed to drill or dig for ground-source heating, perhaps because there is a water collection close to your house, for example. Or perhaps there is no suitable bedrock under your land, or your plot of land is too small to be able to excavate and lay a hose under-ground.

A good choice in this case, is an air/water heat pump, which is the option described in this brochure.

Using air as the heat source



An air/water heat pump concentrates the heat energy from outdoor air in such a way that it can heat water for radiators and showers using the indoor module.

The element
that heats your radiators

The Ancient Greeks believed that the universe was made up of four elements: fire, earth, air and water. They would probably be amazed that we are now increasingly using the three latter elements as a source of heat for our homes.

The principle behind air/water heating is simple. Even at sub-zero temperatures, the outdoor air contains heat. Sufficient heat to heat both your house's water-based radiators/under-floor heating and your hot water. Your primary source of heat, therefore, is free.

NIBE's system solution the most efficient

No air/water heat pump can heat up a house on its own when the weather is at its coldest.
You therefore need to supplement an air/water heat pump with an indoor module or a boiler fired by wood or oil. If you already have one, you can keep it, but this is rarely as economical as combining our powerful NIBE F2025 heat pump with one of our various indoor modules. This will give, you the market's most efficient system solution.

Save up to 65%

NIBE can offer three different indoor modules:
NIBE VVM 300, NIBE EVP 270 or NIBE EVP 500.

How much you save depends on where you live. The further south, the better the total output of your air/water heat pump. It also depends on the size of your house and how much energy you currently consume.

As a rule of thumb, you can save 50-65% of your heating costs with an air/water heat pump from NIBE. Take a look at the savings calculations on page 18, or ask a NIBE installer.

Cheaper pool heating

Air/water heating is particularly suitable for heating pools. It saves money and banishes those icy cold dips. This provides a total solution that is extremely energy-efficient – even more efficient than ground source heating. NIBE Pool 20 is an accessory that we have developed to make it easy to control the heating of your pool.

Tough performance in an extreme climate

NIBE's heat pumps have been developed and manufactured to deal with the Nordic climate. This says a lot about their capability. Not only do they work at temperatures as low as –20°C. They also have to start and stop thousands of times a year, in all weathers.

Both the materials used and the design must guarantee reliable operation when you need it the most. So choose NIBE – and you can wake up cosy and warm, even on the coldest mornings.

This is how it works

Perhaps you're wondering how it's possible to heat your house with air? The key to the heat pump is that it concentrates heat energy from the outdoor air so that it can heat water for both showers and radiators.

Put simply, this is what happens. The outdoor air is drawn into the heat pump and meets a closed system. This system contains a refrigerant that can to turn into gas at very low temperatures.

Under high pressure, a compressor considerably increases the temperature of the refrigerant, which is now gaseous. Then, using a condenser, the heat is transferred to the house's heating system, while at the same time the refrigerant reverts to liquid form, ready to turn into gas once more and to collect new heat energy.

The result is the main thing

The principle behind air/water heating 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

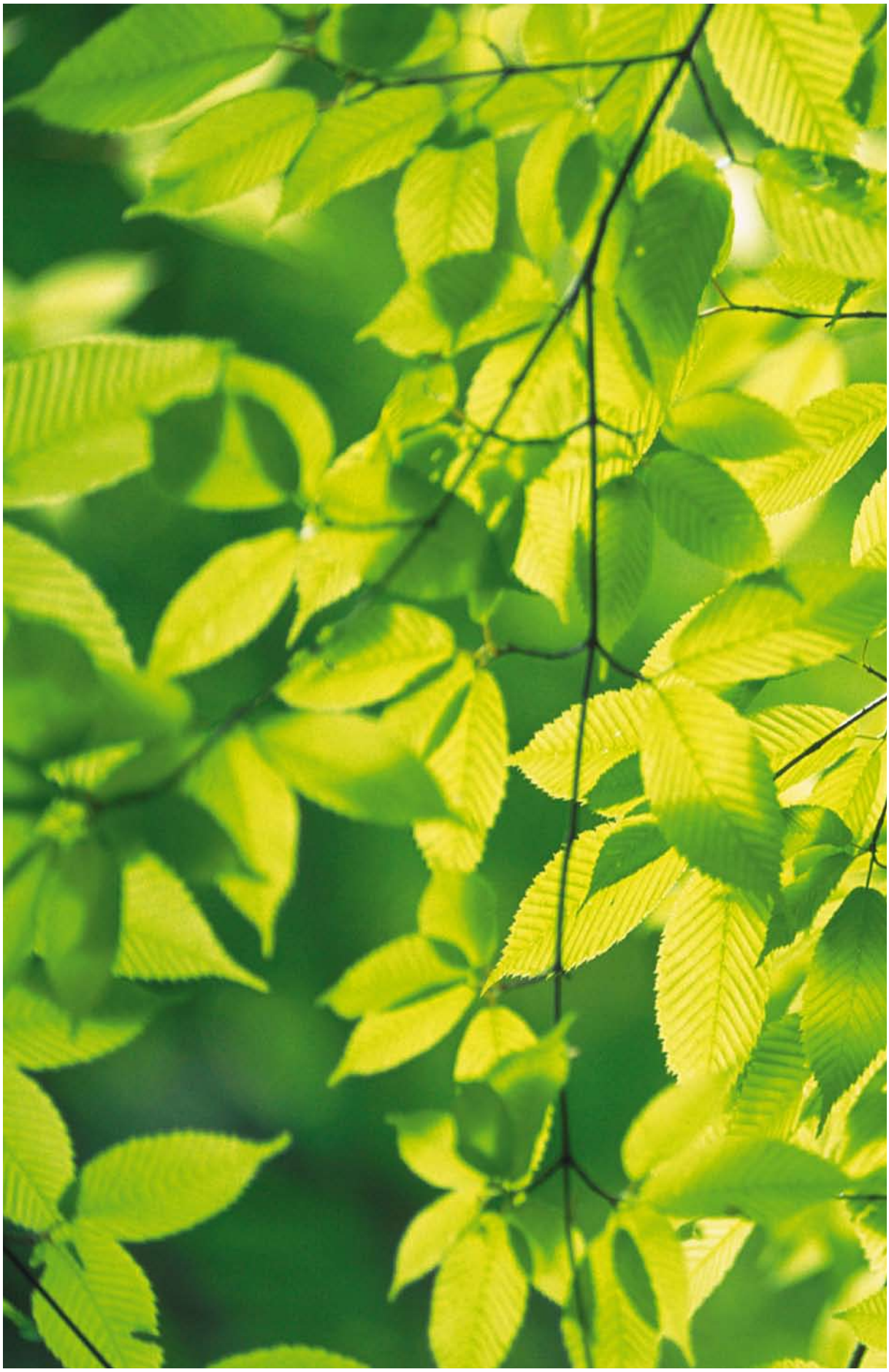
How this is achieves is simple. In contrast to biofuel and district heating, a heat pump does not use any combustion process or other energy to generate heat.

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

Every house that is heated by electricity and switches to air/water heating will reduce its electricity requirement by 50–65%. The more people who switch to air/water heating, the more electricity we can buy from clean sources. We then reduce our reliance 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.



The air/water heat pump – wins the battle for the air

Advanced defrost control to keep the cooling battery free from ice in all weathers

Low noise level thanks to the two-step fan

New, stylish design that suits most environments

Comprehensive monitoring and safety system, to guarantee reliable operation throughout the heat pump's entire working life

A scroll compressor enables the pump to draw heat energy from the air at temperatures as low as –20°C

The fan is placed on the front so that cold, used air is drawn away at once. This air is diverted well away from the heat pump. This means that only fresh, energy-enriched air is drawn to NIBE's pump.

Integrated control means that the heat pump can work completely independently from the very start, without the need for extra accessories

Battery with two levels of anti-corrosion treatment to make sure that it doesn't rust

Hard-wearing materials and durable design enable the pump to cope with tough climate

NIBE FIGHTER 2005 Outdoor module

- Sizes: Single-phase 8,11 kW
- Compressor: Scroll
- Soft start: Yes
- Fan: One-step
- Max. heat carrier temperature: 58°C
- Lowest outdoor temperature: -10°C
- Highest outdoor temperature: 35°C
- Cabinet: Stainless steel

The FIGHTER 2005 is an air/water heat pump that can heat hot water efficiently at a high outdoor temperature and generate a high output for the heating system at a lower outdoor temperature. If the outdoor temperature falls below the stop temperature, all heating must be generated using external additional heating. Used together with electric boiler, oil/pellet boiler or wood-fired boiler.
The FIGHTER 2005 has an automatic 2-step capacity adjustment of the fan.
Integrated control means that the heat pump can work completely independently from the very start, without the need for extra accessories

Height: 1,045 mm Width: 1,200 mm Depth: 500 mm

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 power coated

The F2025 utilises the outside air so there is no need for bore holes or hoses in the ground. The F2025 is designed to be docked to water-based heating systems. New efficient scroll compressor operates at temperatures down to -20 °C. Automatic 2-step capacity regulator for the fan (not 6kW model). Integrated intelligent control for optimum control of the heat pump.
The F2025 is started by a start signal from another unit, return sensor or thermostat. The material has a long service life and is designed to withstand the Nordic outdoor conditions.
The F2025 can also be used together with most electric boilers, oil boilers or similar.

Height: 1,045 mm Width: 1,200 mm Depth: 520 mm

NIBE VVM 300 Indoor module

• Suitable for heat pump sizes	8, 10 kW
• Water volume	280 litres
• Hot tap water	150 litres
• Max. electric cartridge output	13.5 kW
• Docking pump	Yes/speed-controlled
• Output monitor	Yes
• Prepared for pool heating	Yes
• Prepared for control of two heating systems	Yes
• Connection for additional heat source	No
• Can be used without heat pump	Yes

Smart, complete indoor module for heating and hot water for the detached or terraced house. Specially constructed to be connected to and to communicate with the NIBE FIGHTER 2005, F2025 air/water heat pump. With integrated, copper-lined water heater with capacity of 55 litres. Fitted with climate-controlled automatic shunt for optimal temperature for the water-based heating systems. Advanced charge automation guarantees that the COP heating factor is ideal in all weathers. Can be connected to to pool heating and extra shunt group. Simple installation, service and care.

Height: 1,880 mm Width: 600 mm Depth: 615 mm

NIBE EVP 270 Indoor module

• Suitable for heat pump sizes	8, 10 kW
• Water volume	270 litres
• Max. electric cartridge output	13.5 kW
• Docking pump	No
• Output monitor	Yes
• Prepared for pool heating	No
• Prepared for control of two heating systems	No
• Can be used without heat pump	Yes
• Connection for additional heat source	No

Compact indoor module for heating and hot water for the detached or terraced house. Suitable for low ceilings. Specially constructed to be connected to and to communicate with the NIBE F2025 air/water heat pump.
Fitted with climate-controlled automatic shunt for exactly the correct temperature for the heating system. Connected at the top. User-friendly with simple installation, service and care.

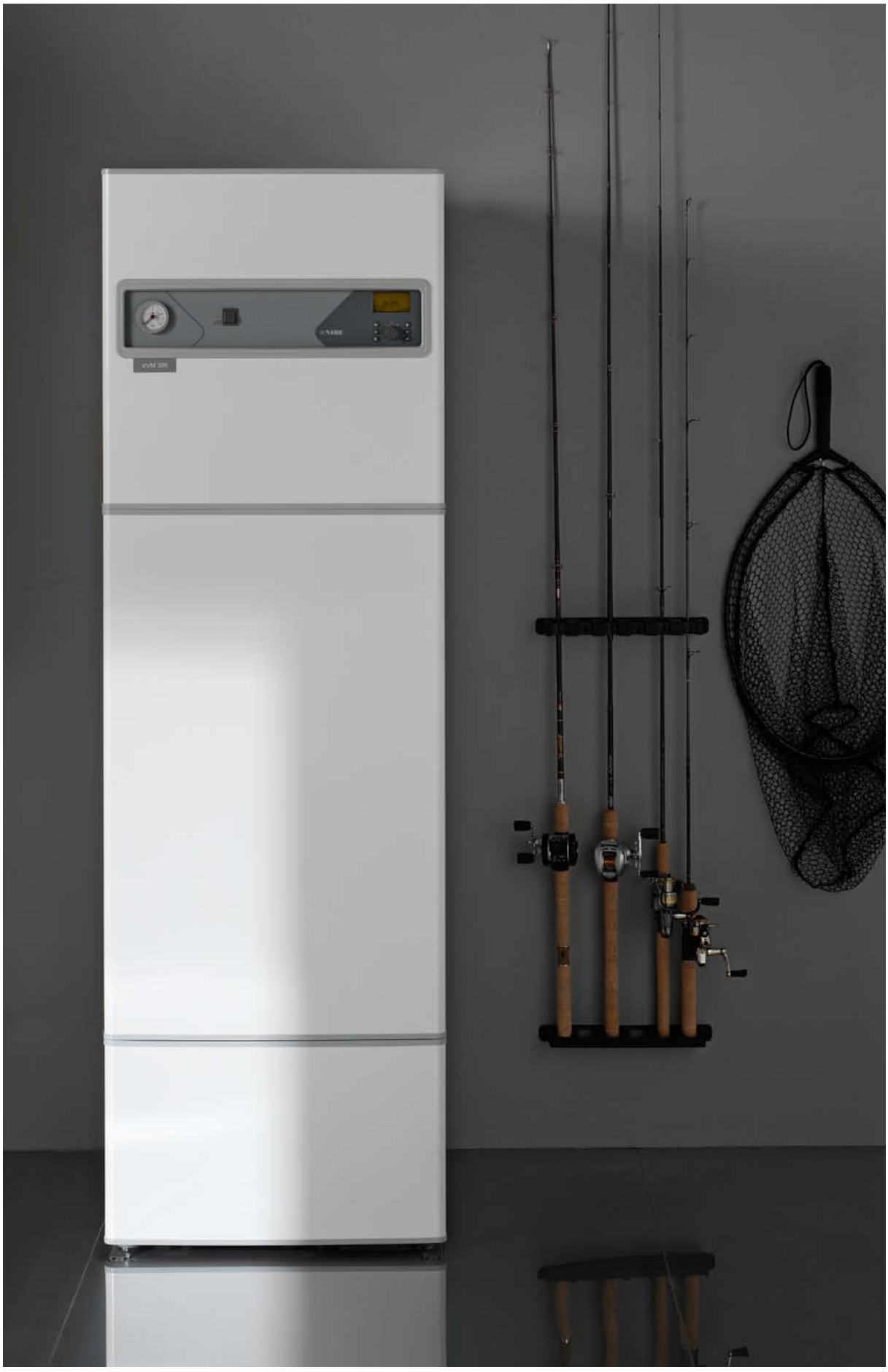
Height: 1,560 mm Width: 600mm Depth: 700 mm

NIBE EVP 500 Indoor module

• Suitable for heat pump sizes	8,10,14 kW
• Water volume	500 litres
• Max. electric cartridge output	18 kW
• Docking pump	Yes
• Output monitor	Accessories
• Prepared for pool heating	No
• Prepared for control of two heating systems	No
• Can be used without heat pump	Yes
• Connection for additional heat source, e.g. solar	Yes

Complete, high-performance indoor module for heating and hot water. Can be connected to all possible heat sources: solar power, wood, pellets, gas, oil or district heating. Specially constructed to be connected to and to communicate with the NIBE F2025 air/water heat pump. Extraordinary hot water comfort thanks to high energy content stored in the tank. The design and water volume of uo to than 500 litres can handle bigger heat pumps such as the NIBE F2025 14 kW, producing an increased saving.
Fitted with climate-controlled automatic shunt for exactly optimal temperature for water-based heating systems. Simple installation, service and care. Insulation and casing can be removed as required to facilitate installation.

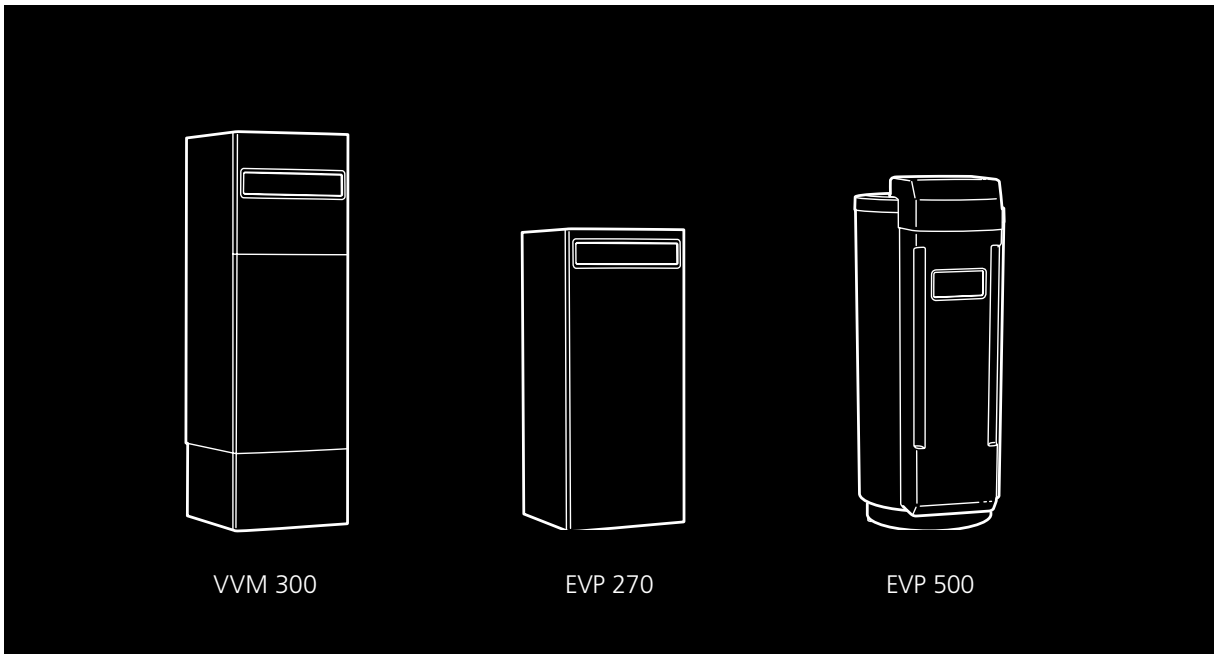
Height: 1,810 mm Width: 750 mm Depth: 950 mm



NIBE VVM 300

Compare our indoor modules

Here is a simple table to compare the functions and specifications of the various models.



	VVM 300	EVP 270	EVP 500
• Height (excluding base 15 – 40 mm)	• 1,880 mm	• 1,560 mm	• 1,810 mm
• Width	• 600 mm	• 600 mm	• 750 mm
• Depth	• 615 mm	• 700 mm	• 950 mm
• Docking pump	• Yes, speed-controlled	• No	• Yes
• Suitable for heat pump sizes	• Max 11 kW	• Max 10 kW	• Max 15 kW
• Boiler volume	• 125 litres	• 267 litres	• 495 litres
• Pipe connection	• Bottom	• Top	• Top
• Max. electric cartridge output	• 13.5 kW	• 13.5 kW	• 18 kW
• Output monitor	• Yes	• Yes	• Accessory
• Prepared for pool heating	• Yes	• No	• No
• Prepared for control of two heating systems	• Yes	• No	• No
• Can be used without heat pump	• Yes	• Yes	• Yes
• Connection for additional heat source	• No	• No	• Yes (e.g. solar)

Possibilities
with your heat pump

A NIBE air/water heat pump is not just for heating your house and the hot water. With our broad range of accessories you can, for example, heat your pool, extend your hot water comfort and control the operation of heat pumps when you have connected several units together to form a system. Your NIBE installer can give you more information.

Cheaper pool heating

If you have a pool or are planning to get one, it's a good idea to tell your installer about this in good time. This gives you an opportunity to adapt the size of the heat pump according to the pool's heating requirement. Heating your pool using air/water heating saves money and cuts down on those icy cold dips. The NIBE Pool 11 is an accessory that we have developed specially to make it easy to control the heating of your pool.

Hot water storage tank

The NIBE VPA is a storage tank that you can connect to your heat pump. The VPA stores hot water and is used together with the heating pump models that do not have water heaters, or when there is a high demand for hot water. The VPAS gives you the same function, but, as it is fitted with a solar loop, you can use solar energy for both heating and hot water.

The storage tank consists of a hot water tank with anti-corrosion protection made of copper or enamel. The water tank's insulation consists of polyurethane, which provides very good heat insulation.

The control module that gives you total control

The NIBE SMO 10 is an advanced control module that combines with the NIBE F2025 and your existing heating and hot water system to create a complete, optimised heating system. Can be configured for individual system solutions, for maximum savings and virtually endless combinations settings.

This control module gives you maximum utilisation of the energy extracted. It can be used in a number of different connection options, in system solutions from 14 kW up to 126 kW. However, they are all based on NIBE's air/water heat pumps, which can in turn be docked with an electric or oil boiler and hot water storage tank, for example the NIBE VPA.

The NIBE VPA is a hot water storage tank that is connected to the heat pump. This tank is used together with heat pump models that do not have a water heater, or when there is a particularly high demand for hot water.

The NIBE SMO 10 is a control module that provides total control for systems with several air/water heat pumps.

A cash machine in your garden – you save up to 65%

Here is a simple overview of what you can save with an air/water heating solution from NIBE. The templates are based on the climate in Stockholm, Sweden and are only approximate guideline values.

For a more accurate savings projection, please contact a NIBE installer.

Detached house heated with the NIBE F2025 air/water heat pump
(Household electricity added at approx. 5,000 kWh/year)

FIGHTER	2025-6			2025-8		
Current total oil requirement (m^3/year)	2.5	3	4	3	4	5
Or corresponding total electricity requirement (kWh/year)	18,750	22,500	30,000	22,500	30,000	37,500
Saving (kWh/year)*	11,400	13,200	16,200	14,000	18,000	21,200

FIGHTER	2025-10			2025-14		
Current total oil requirement (m^3/year)	4	5	6	5	6	7
Or corresponding total electricity requirement (kWh/year)	30,000	37,500	45,00	37,500	45,000	52,500
Saving (kWh/year)*	18,800	22,800	26,100	23,700	27,800	31,400

**Values quoted are only approximate guideline values. For correct dimensioning, always consult your installer..*

The easy way to get air/water heating

Contact your local NIBE office at www.nibe.eu.
They will help you to locate your local NIBE installer.

Lower
electricity bills

The Lie family have this charming house in Torekov as their Swedish base. They work abroad and mainly spend time here during the Christmas and summer holidays. However, this large house is heated all year round.

A few years ago they installed an air/water heat pump from NIBE. The deciding factor was not only the soaring cost of electricity, which resulted in high costs for the existing electric boiler.

"I used to tell my husband that you shouldn't have to face ice-cold water in the shower, in the morning," explains Estelle Lie.

By adding NIBE's indoor module they also made sure hot water. The family also have three sons who have to shower every morning.

"Our choice of an air/water pump wasn't just based on the major cost savings we're enjoying. It also feels really good from an environmental aspect."

The air/water heat pump is neatly installed behind the garage. The installation only took a day, and Estelle now hardly ever thinks about it being there.

"You hardly know it's there. It's hidden by a small hedge, and I've never been bothered by any noise coming from it. The only time I actually need to do anything is when I turn down the thermostat on the indoor module," concludes Estelle.

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