ÖKOFEN

# The smart heat pump.


Product catalog heat pump

ÖkoFEN – Europe´s specialist for really green heat – is setting a new standard in the operation and control of heat pumps with the smart GreenFOX air water heat pump. According to the motto "be the change", a maximally sustainable heat pump has been developed – based on proven technology – which is manufactured with the usual ÖkoFEN electronic components at the main factory in Austria.

**Really green with GreenMode**
The unique GreenMode control function optimizes the operation mode of the heat pump. The smart control system processes weather data, self-generated electricity values from the photovoltaic system, country-specific $CO_2$ data and the electricity exchange price. The big goals: To always heat when the electricity is self-generated, cheap and clean, to use the house – as far as possible – as an energy storage system.

**Heat pump with FuturePlus**
For even more independence, the system can be expanded at any time with an ÖkoFEN pellet heating to create a hybrid system. No matter what the future holds – whether the house is extended or electricity becomes more expensive at times, e-cars are charged and electricity peaks occur as a result – the system can be combined with pellets at any time. The hydraulics and control system are prepared. This provides real independence.

**Powerful heating system**
With a system output from up to 18 kW, the GreenFOX heat pump is suitable for both new buildings and heating system replacements. Thanks to state-of-the-art technology and the future-proof refrigerant R290, higher flow temperatures are also possible.

# Europe’s specialist for green heating.



# Pioneers never stop being the first.

In 1997, we launched the first type-tested pellet heating system on the market. Today, we build pellet boilers that generate electricity and heat pumps that control intelligently and make the best possible use of low-$CO_2$ electricity.

It has always been our aspiration to be first in technology and in new markets.

That is what drives us as much today as it did back then.
Our heaters warm people in more than 20 countries, and we also export to future markets such as Asia, South and North America.
**This is heat with a clear conscience.**

**Pioneer & ÖkoFEN founder**
Herbert Ortner

**ÖkoFEN CEO**
Stefan Ortner

unicef

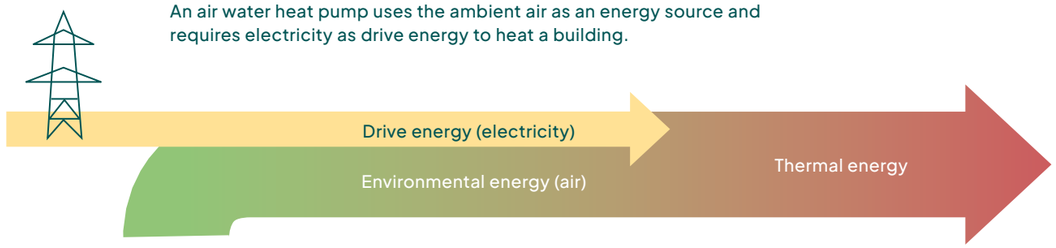
UNICEF AUSTRIA SAYS THANK YOU!
In many regions of the world, the effects of climate change are already clearly felt and are increasingly leading to crisis situations. Children in particular are suffering from the lack of access to clean water. That is why we are pooling our social commitment together with UNICEF Austria.

Visit us online: **oekofen.com**

# How air becomes heat

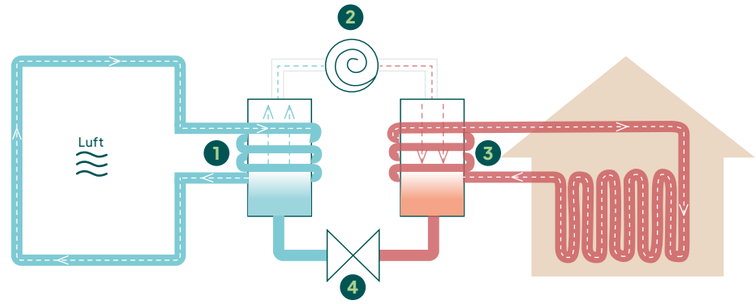
## Functional principle

An air water heat pump uses the ambient air as an energy source and requires electricity as drive energy to heat a building.




1. An integrated fan draws in the air and heats the refrigerant contained in the appliance, which evaporates in the process.

2. This is then compressed in the compressor and brought to the required temperature level using electricity as drive energy.




3. This generates heat that is transferred to the heating system in the building - e.g. to the underfloor heating.

4. The cooling process causes the refrigerant (condenser) to condens and after a short expansion phase the cycle starts all over again.

**The following applies to the heat pumps:**
The lower the required temperature in the heating system and the warmer the outside temperature, the more efficiently the appliance works. Compared to other heating systems, the heat pump does not cover 100 % of the heating requirement on particulary cold days, which is why a second heat source is required in the system.
An electric immersion heater is often used for this purpose.




# GreenFOX® advantages speak for themselves

**GreenMode**

Intelligent control with live $CO_2$ & electricity price data and fully automatic optimization.

**FuturePlus**

Can be easily extended to a pellet hybrid system now or later.

**Premium appliance with top performance data**

Top efficiency values, extremely quiet, climate-friendly refrigerant R290, high flow temperatures possible.

**Cooling**

Simple cooling in the summer months with panel heating systems such as underfloor, wall or ceiling heating.

**Made by ÖkoFEN in Austria**

Manufactured in Austria with the proven high quality ÖkoFEN components.

**Best ÖkoFEN service**

Comprehensive network of specialized sales representatives and service technicians.



**Premium heat pump: quality made in Austria**
Our skilled workers assemble the GreenFOX heat pump, which consists mainly of European components, at our European headquarters. Each device is filled, tested and undergoes strict quality assurance.


## THE heat pump for renovations and buildings with higher energy requirements

The GreenFOX air-to-water heat pump 13/18 has even more space for high-performance powerful components and state-of-the-art technology.

The GreenFOX air-to-water heat pump is now also available in a "bigger size". With up to 18 kW, it offers a higher system output, additional flexibility and efficiency - especially in building renovation projects. This is because it is ideal for renovating existing buildings or buildings with increased energy requirements. The new model in the GreenFOX range therefore meets even the highest (energy) requirements.

# Refinements in detail

**EEV – Electronic expansion valves**
(HD > ND liquid)

**Safety valve**
Draining the refrigerant in
the event of overpressure (freezing)

**Electrical connection box**

**Condenser**
(copper heat exchanger
gaseous > liquid)

**Sight glass**
for refrigerant

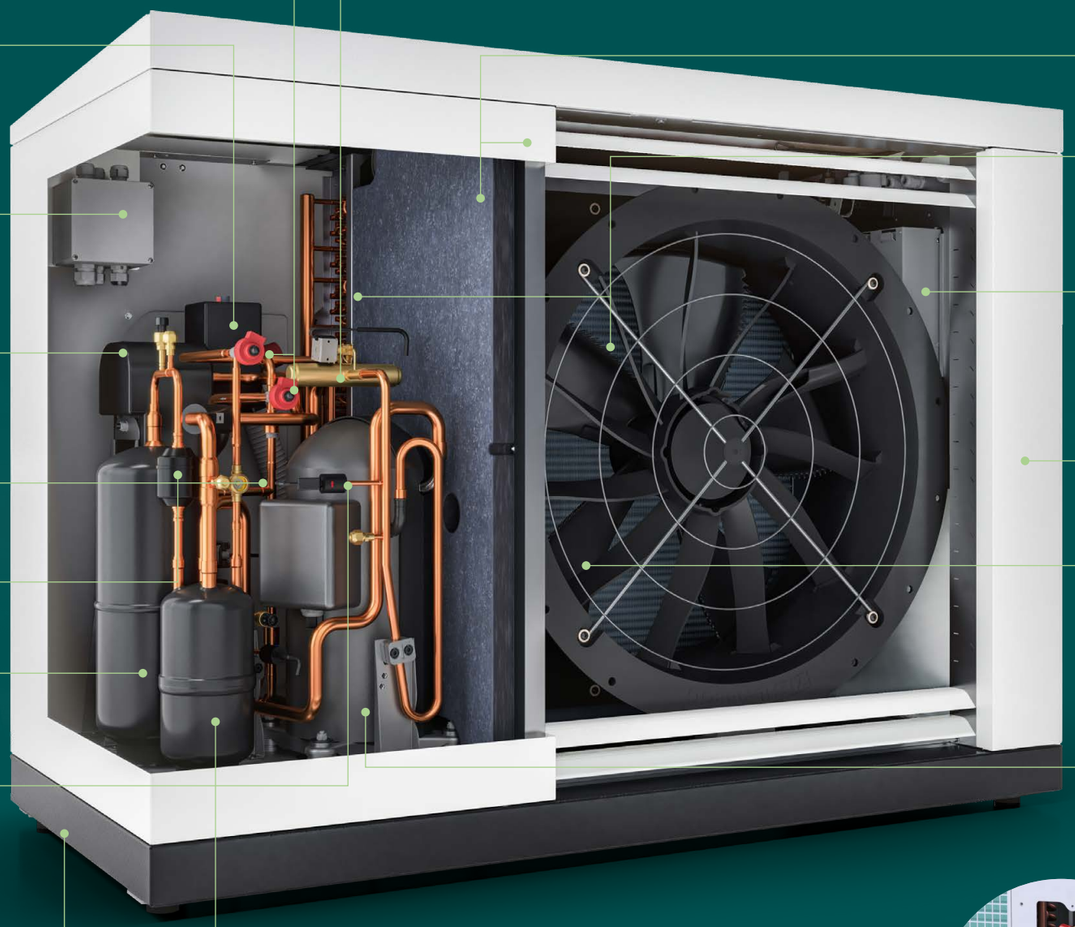
**Filter**

**Collector**
Expansion tank for refrigerant

**Compressor (Scroll) –**
compresses refrigerant

**Flow/return connection**
**bottom rear**

**Liquid seperator**
to protect the compressor



**4-way valve**
(switching heating/cooling)

**High-quality housing**
**and perfect sound insulation**

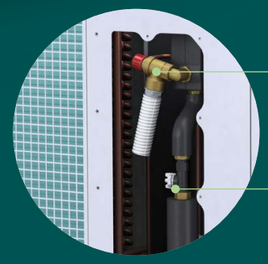
**Generously**
**dimensioned evaporator**
liquid > gaseous

**Inverter technology**
(Frequency inverter)
for modulation operation

**Smart ÖkoFEN control**

**Efficient, whisper-quiet**
**fan technology**

**Latest**
**compressor technology**
with environmentally friendly
refrigerant R290



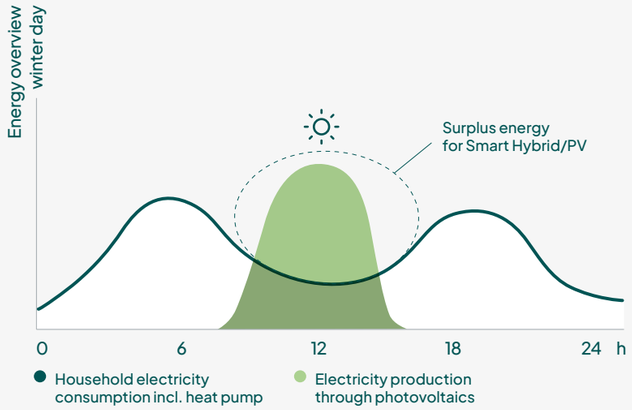
**Frost-proof**
**indoor area**
with safety valve

**Heat meter**

# GreenMode: The world innovation

## Green electricity as a challenge

Depending on the operation state, the heat pump requires one part electricity for 3-5 parts heat. In practice, there is often not enough green electricity available for low $CO_2$ operation of the heating system. Even photovoltaic systems generate a surplus of electricity in summer months, but only cover the demand in winter months to a very limited extend.




**GreenMode ON**

> The GreenMode of our heat pump is based on a completely new and innovative control concept. By using real-time and forecast data on $CO_2$ levels, it enables significantly more environmentally friendly operation. Heating times are optimized by weather and electricity data, resulting in significant savings in electricity costs and $CO_2$ emissions. All this without sacrificing any comfort.



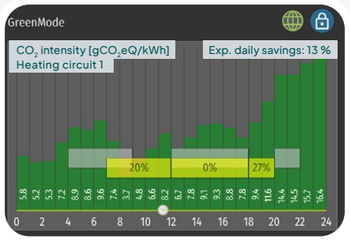
## Smart control and even smarter heating

The GreenMode sets new standards for truly renewable operation of the air source heat pump and is integrated as standard in every GreenFOX heat pump. The aim is to shift the operation of the heating system into as green or favorable an electricity window as possible. Forecast $CO_2$, electricity and weather data are analyzed for this purpose.

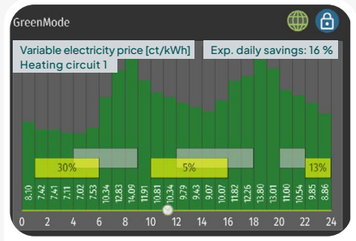
Depending on the level of comfort, it is possible to automatically shift the heating time ± 1, 2 or 3 hours into the more optimal operating window. There are three modes to choose from.

The patented GreenMode can save 10 to 25 % on electricity costs, $CO_2$ emissions and electricity purchases from the grid.

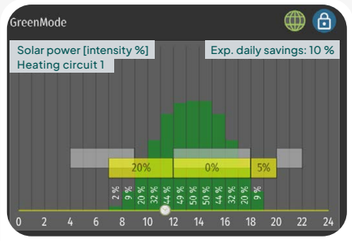
## The 3 GreenModes at a glance




**Heating in harmony with the environment**
The "$CO_2$-optimized GreenMode" analyses current $CO_2$ data and automatically detects the best times for heating. The system knows exactly when the electricity is particularly clean and intelligently adjusts the heating times that as much green electricity as possible is used.




**Heat cost-effectively & cleverly avoid electricity peaks**
The "electricity price-optimized GreenMode" analyses the electricity exchange prices in real time and identifies the cheapest times for heating. Depending on the comfort level, the system automatically adjusts the heating times so that cheaper electricity is preferably used. In addition, a limit value can be set at which the heat pump remains switched off.




**Heating with the help of solar energy**
The "solar power-optimized GreenMode" uses weather data to predict the upcoming solar intensity at your place of residence. If the sun's intensity is high, the system automatically adjusts the heating mode to your PV yield so that more energy from your PV system is used.

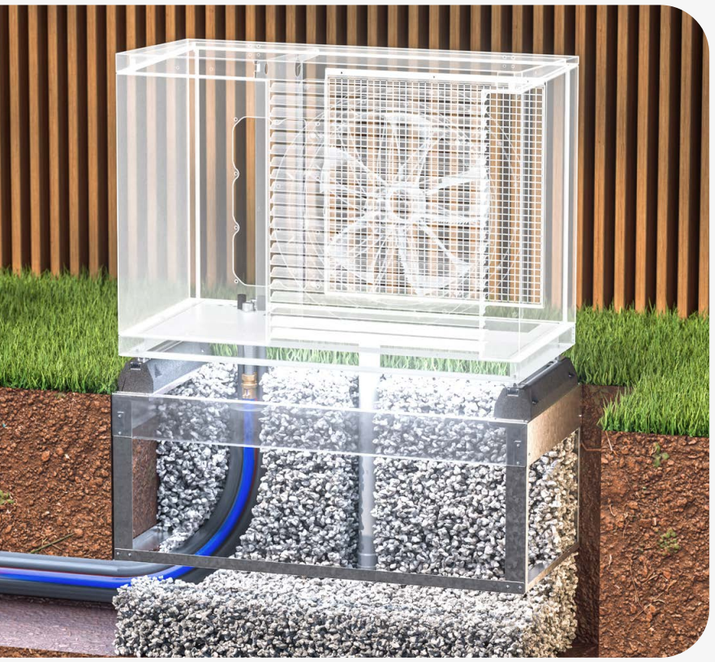
You can switch between the three GreenModes or pause the function at any time. This ensures completely flexible and self-determined heating management.

# The simple though complete heat pump system

The smooth operation of an air-to-water heat pump requires not only a correctly dimensioned, powerful heat pump device, but also the appropriate hydraulics. The complete system from ÖkoFEN not only supplies the heat pump, hydraulics and smart control from a single source, but also saves a lot of time and therefore costs thanks to the simplicity and flexibility of the overall system.

Whatever the requirements, the GreenFOX 9/14 and GreenFOX 13/18 heat pumps offer a wide range of hydraulic solutions to make the system as simple as possible. A comprehensive, particularly smart and user-friendly control system helps to get the absolute best out of the heating system.

By choosing a GreenFOX heat pump, you are opting for a system solution and therefore a simple and easy-to-install complete system.



**The prefabricated foundation**

Minimum effort, maximum practicality: with the prefabricated foundation made of high-quality stainless steel, the preparatory work for setting up the outdoor unit is child's play: Simply dig out, create a gravel base, set up the prefabricated foundation, align and fill with gravel. DONE. Completely without concreting.



# Quick and easy for installers

**Always the right cylinder**
The space-saving ÖkoFEN heat pump system cylinders ensure maximum system efficiency. As a heat center, they compensate for differences in the energy supply. The special all-in-one concept for heating and hot water has a modular design, allowing maximum flexibility during installation.

## Complete system on just 1 m²

**Magnetic sludge separator**
including insulation

**District heating pipe set with fixed point clamp**

**E-rod hydraulic group**

**E-rod**
6 kW

**Combination cylinder**
320 l hot water cylinder &
100 l heating buffer cylinder

**Heat pump hydraulic connection set**

**Heating circuit group**
2nd heating circuit group optional

**Heat pump manifold bar**

**Mini UPS for heat pump –**
Intelligent frost protection for 7–10 days*

**Heating circuit control**

*depending on outside temperature and installation

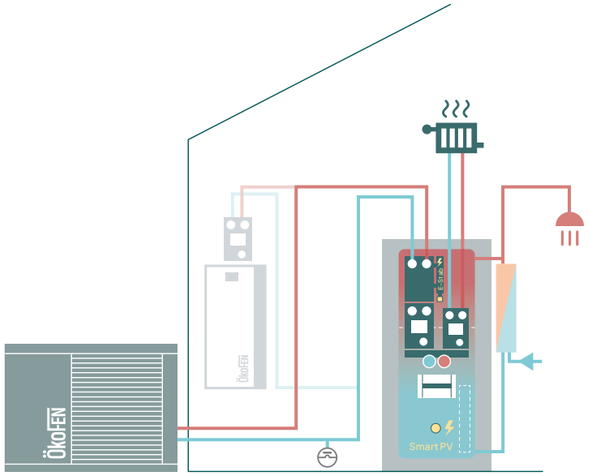
# The perfect solution

**Whether it´s the innovative and energy-efficient heat pump for heating and hot water operation with optional cooling or fresh water module, or the future-oriented hybrid solution in combination with a pellet heating system – with the GreenFOX heat pump, ÖkoFEN offers a flexible, holistic heating concept with truly green energy.**

Easy-to-install, self-developed hydraulic components ensure quick installation and save time and money. The new heating system with FuturePlus creates more independence and the use of really green energy in all applications.

**Hybrid solution with FuturePlus**
The GreenFOX heat pump can be installed as a fully-fledged stand-alone heating system or as a hybrid solution in combination with a pellet heating system. This protects the components of both heat generators, increases the lifetime and reduces fuel costs.

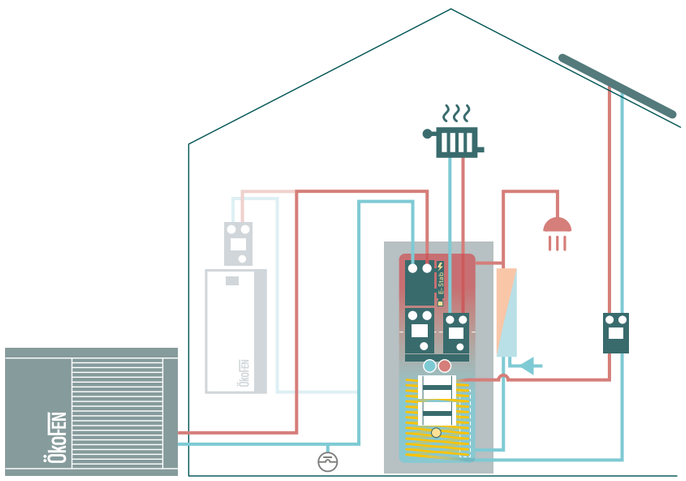
## Hydraulic connection set for system cylinders




FWWP 800 l or 1000 l

**Heating and cooling mode with a system storage tank**
The new system cylinder with 800 l or 1000 l water volume and additional layer seperation guarantees long operating times and enables problem-free grid-compatible operation.

The hydraulic connection set for system cylinders with two valves ensures intelligent switching between heating and hot water operation. All components can be fitted to the system storage tank as usual. Cooling mode is made possible by manual switching ahead of the heating circuit manifold.




FWWP1R 800 l or 1000 l

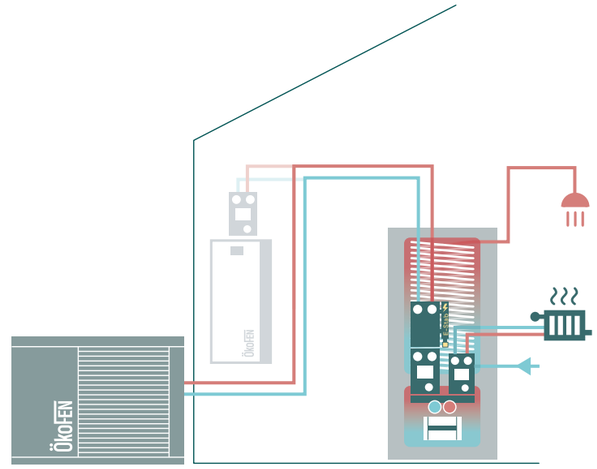
**Heating and cooling mode with system storage and solar**
As an option, the heat pump system cylinder with a water volume of 800 l or 1000 l can be equipped with a solar register – smooth tube heat exchanger.

The hydraulic connection set for system cylinders with two valves ensures intelligent switching between heating and hot water operation. Cooling mode is enabled by manual switching ahead of the heating circuit manifold.



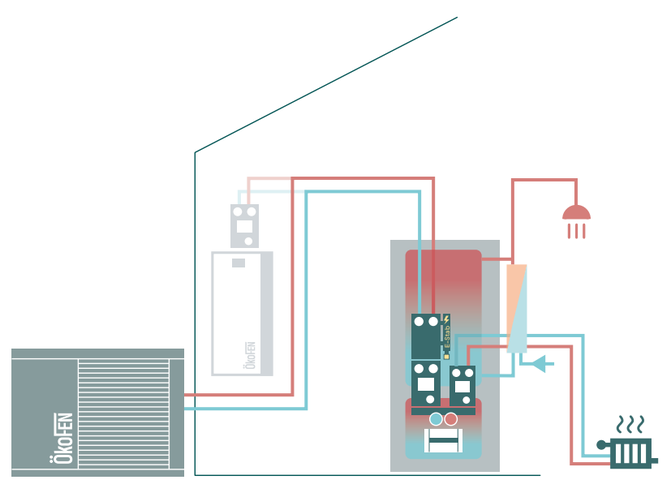
## Hydraulic connection set for combi and double cylinders

**Heating and cooling mode with combined storage tank**
With the hydraulic connection set for combi and double cylinders and just one vlave it is possible, not only to heat with the GreenFOX heat pump, but also to actively cool. Unlike in heating mode, the circuit here is reversed and cold water flows through the system. To use this function, a surface heating system such as underfloor, wall or ceiling heating should be present in the heat distribution. For the usual hot water comfort, it is also important to decouple the buffer cylinder from the hot water buffer in terms of layer.




Boiler 320 l, Buffer 100 l

**Heating and cooling mode with double buffer tank and fresh water station**
The hydraulic connection set for combi and double cylinders in conjunction with a double buffer cylinder enables hygienic hot water preperation with a fresh water module in addition to the heating and cooling operation of the system. The perfect solution for the highest demands!




Buffer 320 l, Buffer 100 l

# The total energy system at a glance

With a heat pump from ÖkoFEN, you get a complete solution for heating, cooling and hot water in your home – fully automatic, compact and convenient.
All components of the energy system are precisely coordinated and provide comfort and warmth with maximum efficiency.


**Touch room control panel**
with integrated room temperature measurement.
3,5 inch


**Touch control panel**
for fully automatic control of the entire energy system.
**5.2 inch**
Details: page 18

**GreenFOX**
**Air-to-water heat pump outdoors**
available in three colors and two different power sizes.

**Prefabricated foundation**
Made from high-quality stainless steel.
Details: page 12

**System tank**
**as a complete system on only 1 m²**
Buffer tank for heating and cooling, hot water storage tank, heating circuit distribution and control, E-rod 6 kW.
Details: page 13

**Intelligent integration of your PV or solar thermal system**
Details: page 11

# Regulation in detail

The all-in-one controller can be extended up to six heating circuits, three hot water boilers, three buffer storage tanks and solar systems with two solar circuits each. Surplus electricity from your PV system can be intelligently converted into heat.


**Customized dashboard**

The start screen can be customized as desired. This allows you to see the most important functions at the first click.

**The all-in-one controller**

With the Pelletronic Touch, you can control the entire heating system in your home.

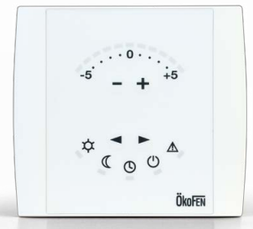
**Heating according to the weather forecast***

The controller evaluates online weather data for your location and adjusts the heating according to the expected hours of sunshine.



**Control directly from the living area**
You do not have to go to your boiler room to change the settings. Your heating can also be conveniently operated from the living room.


Design control panel with 3.5 inch screen

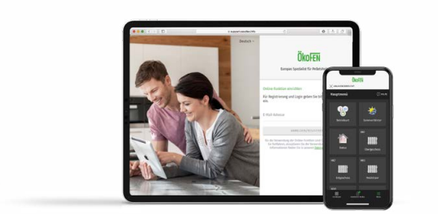



Remote control with LED display

## Pelletronic Touch in the Smart Home

The Pelletronic control unit can be connected to almost any home management system. This makes heating an integral part of the home automation system and, by coordinating it with the rest of the building services (ventilation, cooling, shading), it creates an even better indoor climate and reduces heating costs.

**Wireless room temperature sensor**
Precise heating control via room temperature sensors is child's play thanks to the wireless transmission method. The humidity in the room is also displayed.



**Mobile operation***
Control your heating in the online portal at my.oekofen.info or use the free myPelletronic app to make settings at any time and from anywhere using your smartphone or tablet.

**Online customer service***
After your approval, the customer service can check the settings of your heating system at any time via remote maintenance and, if necessary, rectify faults with little effort.

*Functions are only available if an internet connection is available.

# What makes ÖkoFEN a good choice?

**Reliable and low-maintenance**

98 % of customers would choose us again at any time.

**Innovation**

ÖkoFEN has set several technical milestones in heating technology.

**Ecology**

Not only $CO_2$-neutral heating with pellets - we also protect the climate through sustainable production.

**Comfort**

Control heating from anywhere with the free myPelletronic app .

**Customizability**

The heating system is adapted to your home and heating require-ments and can be flexibly adjusted in terms of output.

**Social Responsibility**

We support people who are already affected by the effects of climate change.

# Best quality and best support.

**Service you can count on**
Our responsibility ranges from system planning, installation and commissioning to ongoing support over the entire service life of the product and beyond.

**98 %**
**Customer satisfaction**
in Austria according to Market Institute

An extremely reliable and robust product at the highest technical level: That is our claim along the entire chain. From research and development to production and customer service, the trust of our customers and the requirements of the future are our commitment and motivation.

**No hidden costs**

Reliable and long-lasting products thanks to the use of high-quality components.

**Long-term warranty**

Durable components including 5-year warranty*.

**Cheap spare parts**

Inexpensive spare parts and fast repairs by our customer service.

**Retrofittable and compatible**

Retrofittability of new developments for more convenience and efficiency in almost all products.

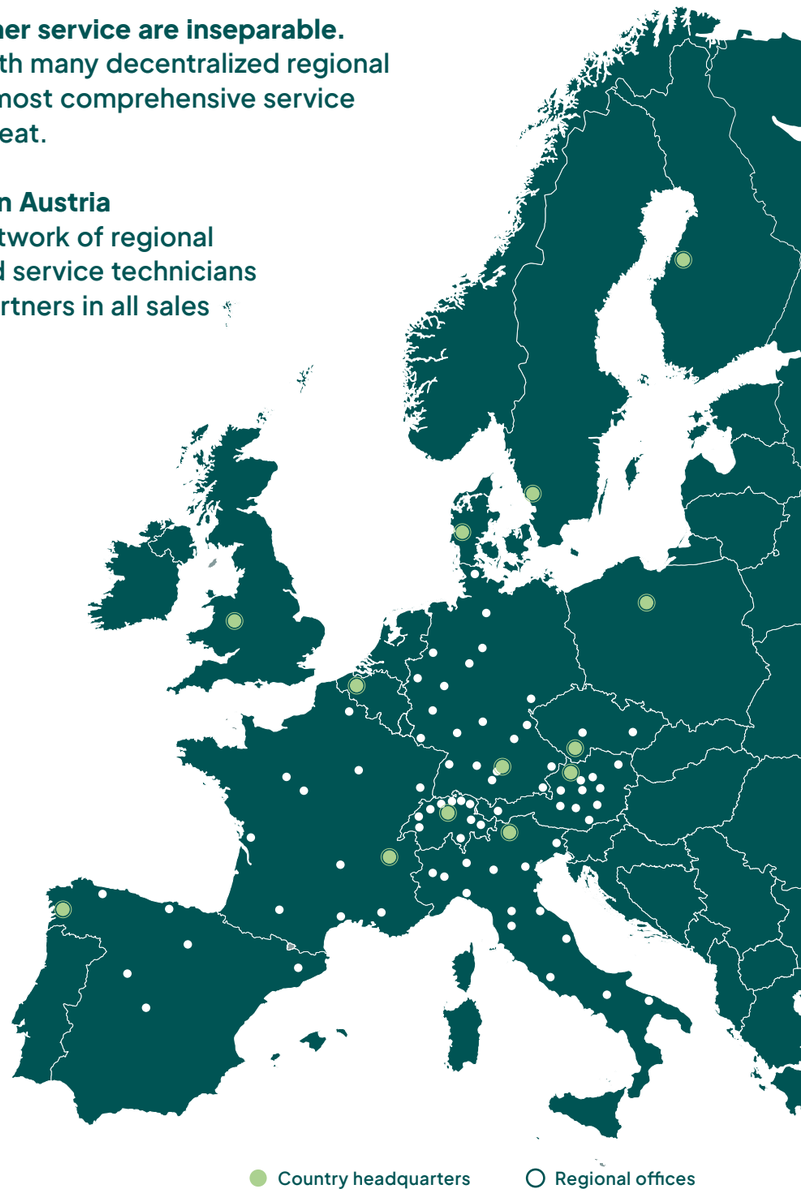
* Details: Warranty conditions according to price list



# We are nearby.

**At ÖkoFEN, sales and customer service are inseparable.**
That is why we are working with many decentralized regional partners to expand Europe´s most comprehensive service and sales network for green heat.

**Over 40 service technicians in Austria**
We rely on comprehensive network of regional representatives with sales and service technicians who support our specialist partners in all sales and technical matters.




**ÖkoFEN worldwide:**
**In more than 20 countries represented.**

**1989** Austria
**1990** Germany
**1997** Switzerland, Italy
**2002** France
**2002** Belgium
**2002** Netherlands
**2004** England
**2006** Spain, Portugal
**2007** Ireland
**2008** Czech Republic, Denmark
**2009** USA
**2010** Argentina
**2010** Canada

All country headquarters and branches, addresses and contact persons: **oekofen.com**

Installation examples

# Enthusiastic about GreenFOX®


## Refurbishment

**Underfloor heating and radiators**

- Year of construction of the house 2008
- Heated area: 145 m²
- Underfloor heating/radiators: 1 UFH circuit / 1 radiator circuit with 1 bathroom radiator and 2 radiators in the workshop

Harald W.

**Simple cooling in summer**
I found the gentle cooling via the underfloor heating very pleasant. The cooling only had to be activated once and then everything ran fully automatically and temperature-controlled. The energy used came directly from my PV system.



## New building

**Underfloor heating**

- Year of construction of the house 2024
- Heated area: 215 m²
- Underfloor heating: 2 circuits x FBH / 1 radiator circuit with 2 bathroom radiators


# Refurbishment

**Radiators**

- Old building 1965
- Heated area: 190 m²
- Radiators: 2 radiator circuits with 1 bathroom radiator

Uwe S.

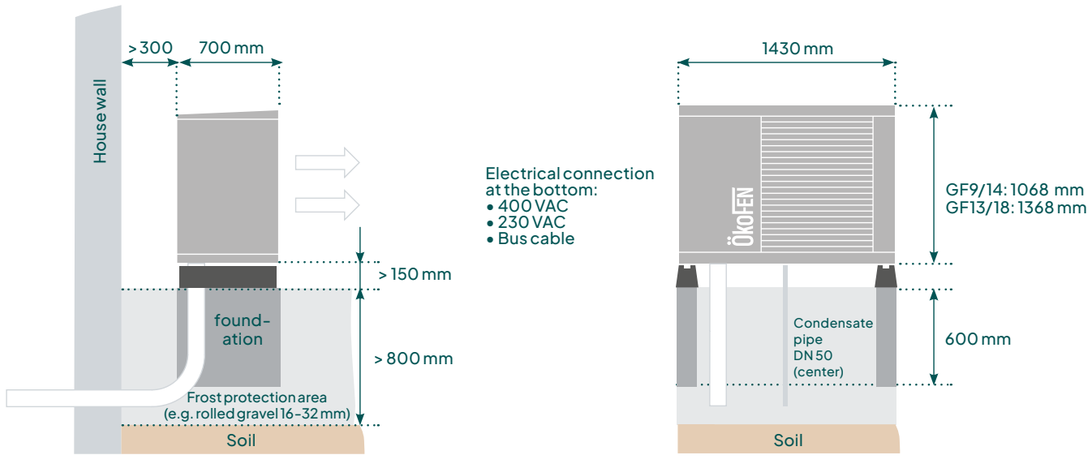
**Convenient heating solution**

We enjoy consistent warmth at home. The heating regulates fully automatically and intelligently. This also allows us to use our surplus PV electricity efficiently and without manual intervention for heating and hot water.



## Technical data

| GreenFOX | | 9/14 | 13/18 |
|---|---|---|---|
| Maximum system output with heating rod at minimum outside temp. and max. flow temp. (-7 °C AT / 55 °C VL): | kW | 14 | 18 |
| Energy efficiency class 35 °C / 55 °C | | A+++ / A++ | |
| Dimensions H x B x T | mm | 1068 x 1430 x 700 | 1368 x 1430 x 700 |
| Weight | kg | 210 | 230 |
| **Power range heating mode** | | | |
| A7 / W35 | kW | 3,7 - 10,0 | 3,7 - 13,5 |
| A2 / W35 | kW | 3,7 - 10,0 | 3,7 - 13,5 |
| A-7 / W35 | kW | 3,0 - 9,9 | 3,7 - 13,5 |
| **Performance data (heat output / COP) according to DIN EN 14825 and DIN EN 14511-2** | | | |
| Flow temp. 35 °C at outside temp. 7 °C (A7 / W35) | kW / COP | 5,7 / 5,4 | 6,7 / 5,5 |
| Flow temp. 35 °C at outside temp. 2 °C (A2 / W35) | kW / COP | 4,7 / 4,6 | 6,8 / 4,7 |
| Flow temp. 35 °C at outside temp. -7 °C (A-7 / W35) | kW / COP | 8,0 / 3,1 | 9,8 / 3,3 |
| SCOP Medium bei 35 °C flow temperature | | 4,89 | 5,17 |
| SCOP Medium bei 55 °C flow temperature | | 3,74 | 3,94 |
| **Power range Cooling mode** | | | |
| A35 / W18 | kW | 4,0 - 10,0 | 3,7 - 13 |
| A35 / W7 | kW | 4,0 - 10,0 | 3,7 - 13 |
| **Performance data (cooling capacity / EER) according to DIN EN 14825 and DIN EN 14511-2** | | | |
| Flow temp. 18 °C at outside temp. 35 °C (A35 / W18) | kW / COP | 10,2 / 4,6 | 10,2 / 4,7 |
| Flow temp. 7 °C at outside temp. 35 °C (A35 / W7) | kW / COP | 10,3 / 2,7 | 10,1 / 2,7 |
| Application range heating / cooling mode | °C | -20 to +40 / +15 to +45 | |
| max. Flow temp. / min. return temp. (heating mode) | °C | +65 / +20 | |
| min. Flow temp. (cooling mode) | °C | +7 | |
| Refrigerant (type, filling quantity, GWP, chem. formula) | | R290 / 3,4 kg / 3 / C3H8 | R290 / 3,5 kg / 3 / C3H8 |
| Sound power level (DIN 12102-2 and DIN EN ISO 9614-2) | dB (A) | 45,2 | 43,4 |
| max. sound power level day / night | dB (A) | 54,3 / 51,4 | |
| min. sound power level night | dB (A) | 48,2 | 46,4 |
| Sound pressure level at a distance of 5 m | dB (A) | 19,1 | 17,3 |
| Sound pressure level at a distance of 2 m | dB (A) | 25,4 | 23,6 |
| Nominal voltage control / compressor | VAC | 230 / 400 | |
| Circuit breaker (230 VAC / 400 VAC) | A, Typ | 13, B / 16, C | |




Instalation sketch: Detailed foundation plan in the planning documents.

Technical changes reserved.

# The ÖkoFEN promise

**Durability**
ÖkoFEN quality guarantees reliable and long-lasting products

**98 %**
**Customer satisfaction**

**High efficiency**
and cost-effective operation

**Made in Austria**

**Innovative** and always at the cutting edge of technology

Smart heating control with **touch display**

ÖkO2/P25

ÖkoFEN Forschungs- & Entwicklungs Ges.m.b.H., 4133 Niederkappel, Gewerbepark 1