SOLARFOCUS

Biomass heating | Heat pumps | Solar energy systems

Air source heat pump

vampAIR ECO

R290
with natural refrigerant

- A new generation of heat pump
- Outstanding photovoltaic integration
- Heating and cooling

5 YEAR SYSTEM WARRANTY

Energy lies in the air

Choosing the right heating system is an important decision that will have an impact for many years. With an air source heat pump from SOLARFOCUS, you can heat worry-free not only in new builds, but also in redevelopments with higher flow temperatures of up to 70°C.

The high-quality workmanship of our heat pump can be seen in every single detail. In sun, rain, ice or snow, thanks to the high-quality housing construction with no plastics, our heat pump leaves an especially pleasing impression.

5-year system warranty

There's more to an efficient heating system than just an efficient heat pump. Above all, the perfect interaction of all components is essential for safe and cost-effective operation. For this reason, SOLARFOCUS grants a 5-year system warranty on all registered and maintained systems. The system warranty covers all components supplied by SOLARFOCUS.

5 YEAR SYSTEM WARRANTY

A new generation of heat pump

vampAIR ECO

with natural refrigerant

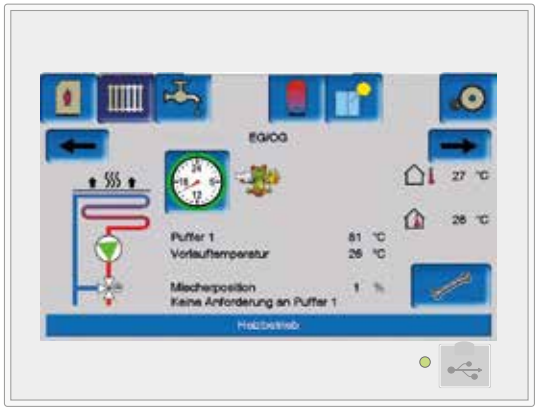
HEATING + COOLING + HOT WATER

- The natural refrigerant R290 is gentle on the atmosphere thanks to its low global warming potential (GWP = 3) and is neither toxic nor ozone-depleting (ODP = 0).
- Thanks to the high flow temperature of up to 70°C, thermal legionella protection can be ensured without activating the electric heating element.
- Due to the high availability of R290, the refrigerant is future-proof and cost-effective in the long term.

Controller for the entire heating system

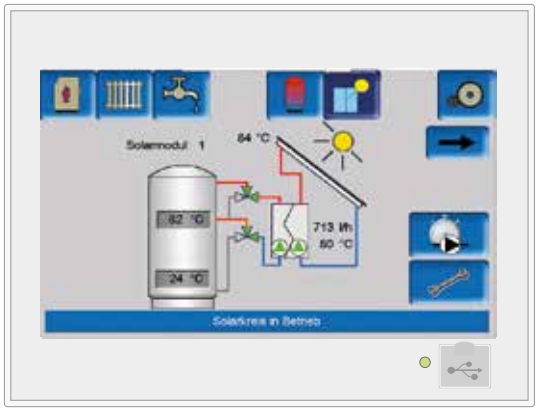
Clear operation for the entire heating system

With its intuitive touchscreen controller ecomanager-touch, SOLARFOCUS offers outstanding user-friendliness. The modern control concept with simple operation via touchscreen controls both the heat pump and the entire heating system. This allows all SOLARFOCUS products within a heat network to be linked and synchronised in the best possible way.



Hot water preparation

All sensors and functions for controlling a hot water tank or a fresh water module are already included as standard. Optionally, up to 4 hot water tanks/combination tanks or 4 fresh water modules can be integrated into the control system. Circulation pumps with different programmes (flow impulse, time, temperature) can also be controlled for all variants. Alternatively, circulation can also be triggered via Modbus using a motion sensor, for example.



Weather-guided heating circuit

All sensors and functions for controlling an unmixed heating circuit are already included as standard. Different time windows, holiday programmes or drops in temperature can be set individually. Optionally, up to 8 mixer-controlled heating circuits can be integrated into the control system. Each heating circuit can be optionally extended with a room temperature sensor or controller. Variants with or without a humidity sensor or a room temperature controller with a radio or cable connection are available.

Smart heat pump has the future in mind

The weather forecast feature (weatherman) is integrated as standard. This remarkable innovation not only gives the user added convenience but also helps save money. The control unit accesses live data and weather forecasts from a weather server and uses this to tell the heat pump when to heat or when to remain inactive, because sunshine is expected.

Smart home integration

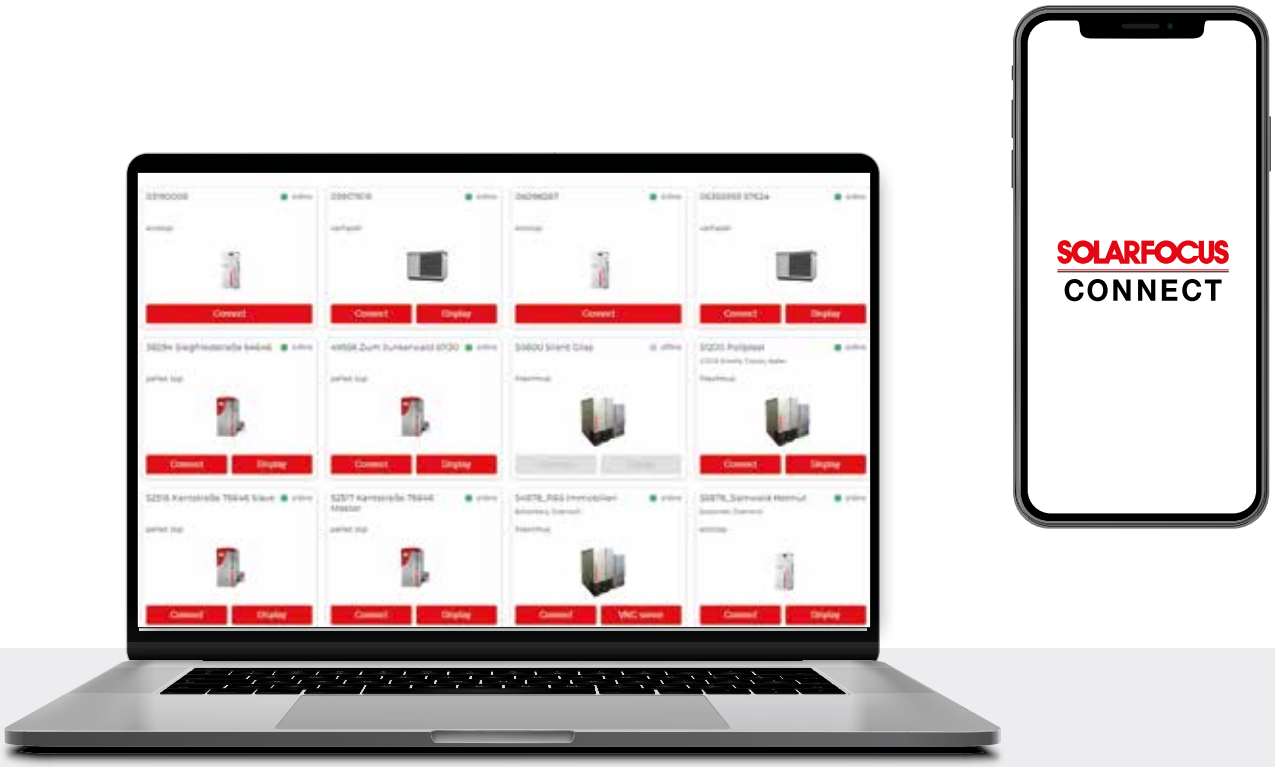
All SOLARFOCUS heaters have a LAN and a Modbus TCP interface as standard. This makes it easy to integrate the boiler into a network and control it remotely via PC, tablet or smartphone.

LOXONE

SOLARFOCUS products also communicate with the LOXONE smart home control system using an integrated Modbus TCP interface. No additional SOLARFOCUS extensions are required for the connection to the miniserver.

KNX

The ecomanager-touch can be connected to a KNX control system using a converter from KNX to Modbus TCP. The converter required for this is available from your trusted KNX partner.



SOLARFOCUS Connect

Is a fee-based platform that provides the customer with full remote access to the ecomanager-touch via VNC. With SOLARFOCUS Connect, you can see your heat pump display on your smartphone, tablet or PC as if you were standing right in front of it. The connection runs in a secure VPN channel so that only authorised users have access to it.

If you have any questions for the heating engineer in charge or a SOLARFOCUS technician, you can grant them temporary access to the controller. This means that questions or settings can be explained live on the display. And it also enables more targeted, faster remote diagnoses in order to provide you with better assistance.

mySOLARFOCUS

The free mySOLARFOCUS app allows you to control the most important functions of your heating system remotely. For example, you can select different operating modes (holiday mode, automatic mode or reduced mode) of the heating circuits and you can control the temperatures of the hot water and buffer tanks. The current status line of the heat generator is also displayed.

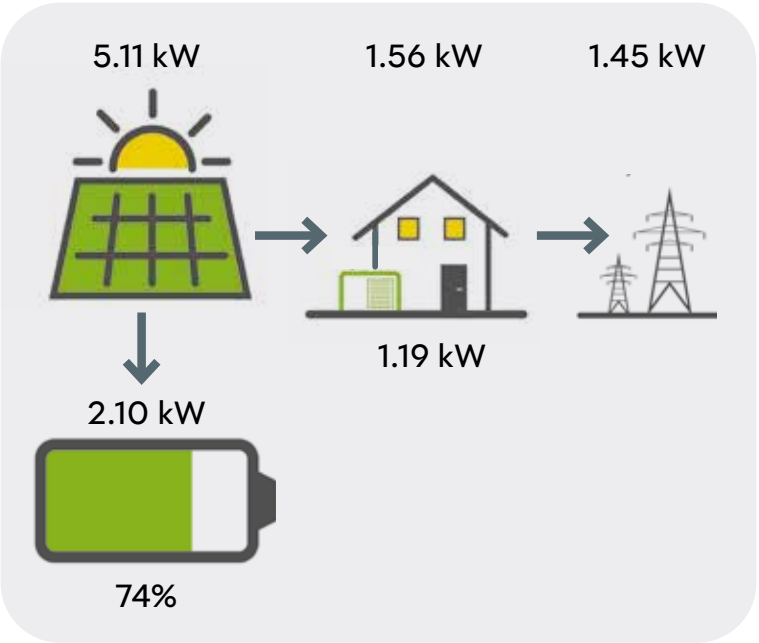
If a PV system with a Fronius, SolarEdge or Huawei inverter and a corresponding energy meter are installed, the current energy balance as well as the daily consumption of the heat pump can be clearly displayed. Push notifications to your smartphone give you important information. It's quick and easy to set up the app on your smartphone, and it is available for Android and iOS.

Outstanding photovoltaic integration

Surplus electricity from the PV system that is not required is converted using the heat pump. Thanks to a very high level of efficiency, electricity can be converted into heat with a ratio of up to 1:5; i.e. 1 kW of electricity is converted into around 5 kW of heat. This heat is temporarily stored in a domestic hot water tank, buffer tank, screed or concrete core activation system and is easily available when heat is needed. The heat pump can also provide free cooling in summer.

Integration of the PV system independently of the inverter

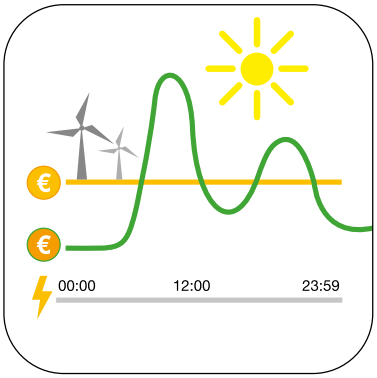
A prerequisite for optimised self-consumption of surplus PV electricity is that the heat pump also receives the precise amount of surplus PV electricity. For this reason, a dedicated interface has been developed for the heat pump to communicate with the inverters from Fronius, SolarEdge and Huawei. The electricity fed into the grid is measured via the inverter's smart meter and transmitted to the heat pump. If an inverter from another manufacturer is installed, it is possible to use the optional SOLARFOCUS energy meter to measure the surplus current directly at the house connection.



Optionally with battery storage systems

Battery storage systems can also be integrated. These are prioritised for charging for household electricity and also help to reduce the amount of electricity drawn from the grid. Battery storage systems are a very useful addition, especially for PV systems with feed-in limitations.

Dynamic electricity price control

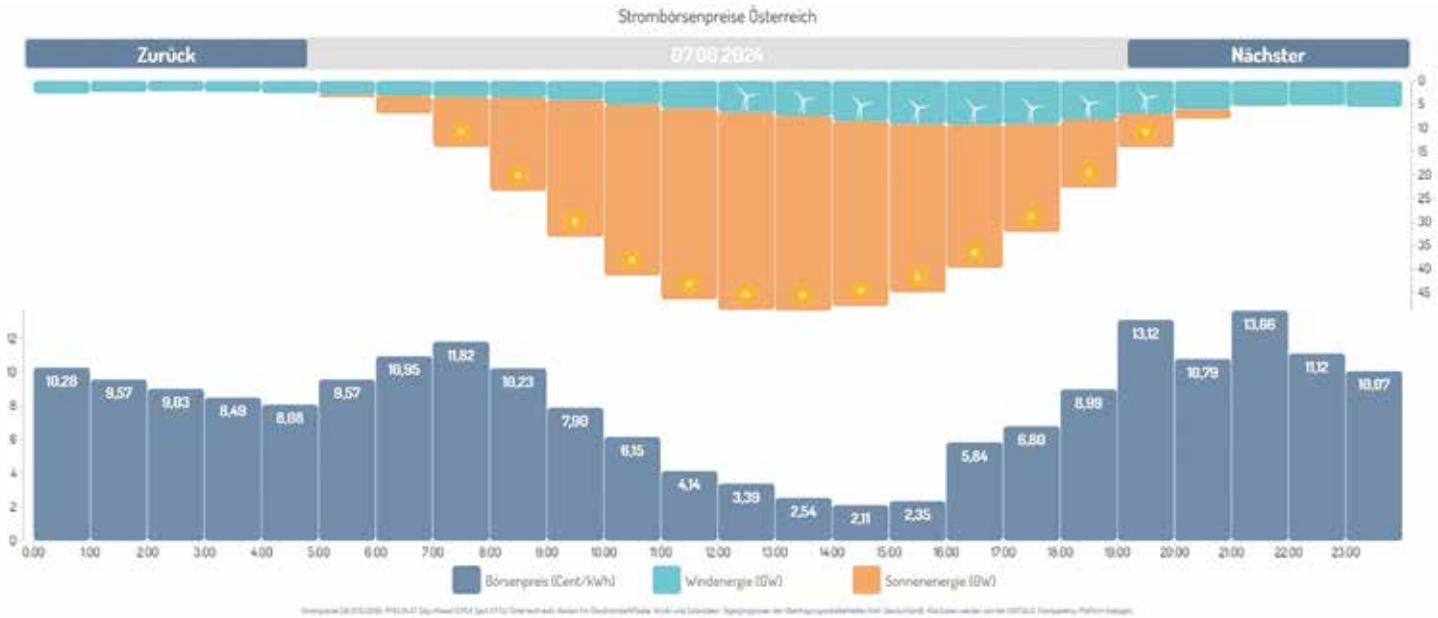


The innovative ecomanager-touch controller guarantees the customer that the heat pump is always operated at the best possible time and that the electricity costs for grid consumption are minimised. This is based on the variable hourly electricity tariffs of the European Energy Exchange in Leipzig, which fall when there is a high supply of renewable energy on the day-ahead market.

The ecomanager-touch controller not only takes into account the dynamic electricity price, but also the efficiency of the heat pump and the expected PV yield. As the efficiency of an air source heat pump is heavily dependent on the outside temperature and the flow temperature, this data is used to determine the optimum operating period for the heat pump.

ELECTRICITY TARIFF + EFFICIENCY + PV YIELD

In combination with the hydrotower PVmax storage system, an extremely efficient system is created that comprehensively optimises both heat and electricity use.



Hydro modul indoor unit

Your key benefits

- Indoor unit, including safety assembly, sludge trap, volume flow sensor and primary circuit pump
- Including control for 1 unmixed heating circuit and 1 DHW charging circuit, can be extended to a maximum of 8 mixed heating circuits
- Electric heating element – optionally steplessly adjustable
- Enables the realisation of numerous hydraulic circuits
- Intuitive 7" touch display with ecomanager touch controller

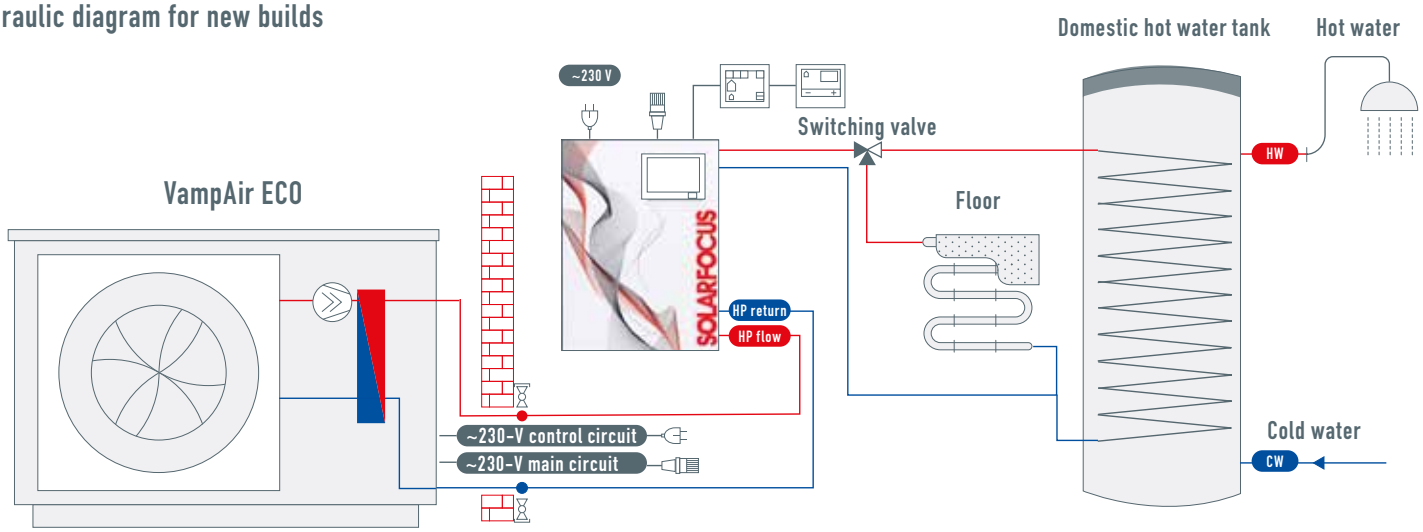
Compact indoor unit for maximum flexibility

The indoor unit contains all the essential hydraulic components required to operate the heat pump. The hydromodule can be used for numerous hydraulic circuits. In addition to a simple connection using a switching valve between the heating and hot water charging, concepts with several buffer tanks and energy sources can also be realised.

The indoor unit consists of a speed-controlled primary circuit pump, volume flow sensor, safety assembly, sludge trap and an electric heating element. As an option, the heating element can be controlled steplessly in order to utilise the electricity in the event of a PV surplus.

The entire heating system is controlled via the integrated display, which includes a controller for an unmixed heating circuit and hot water charging system. If required, the scope of control can be customised with the aid of additional extension modules.

Hydraulic diagram for new builds



hydrotower easy system tank

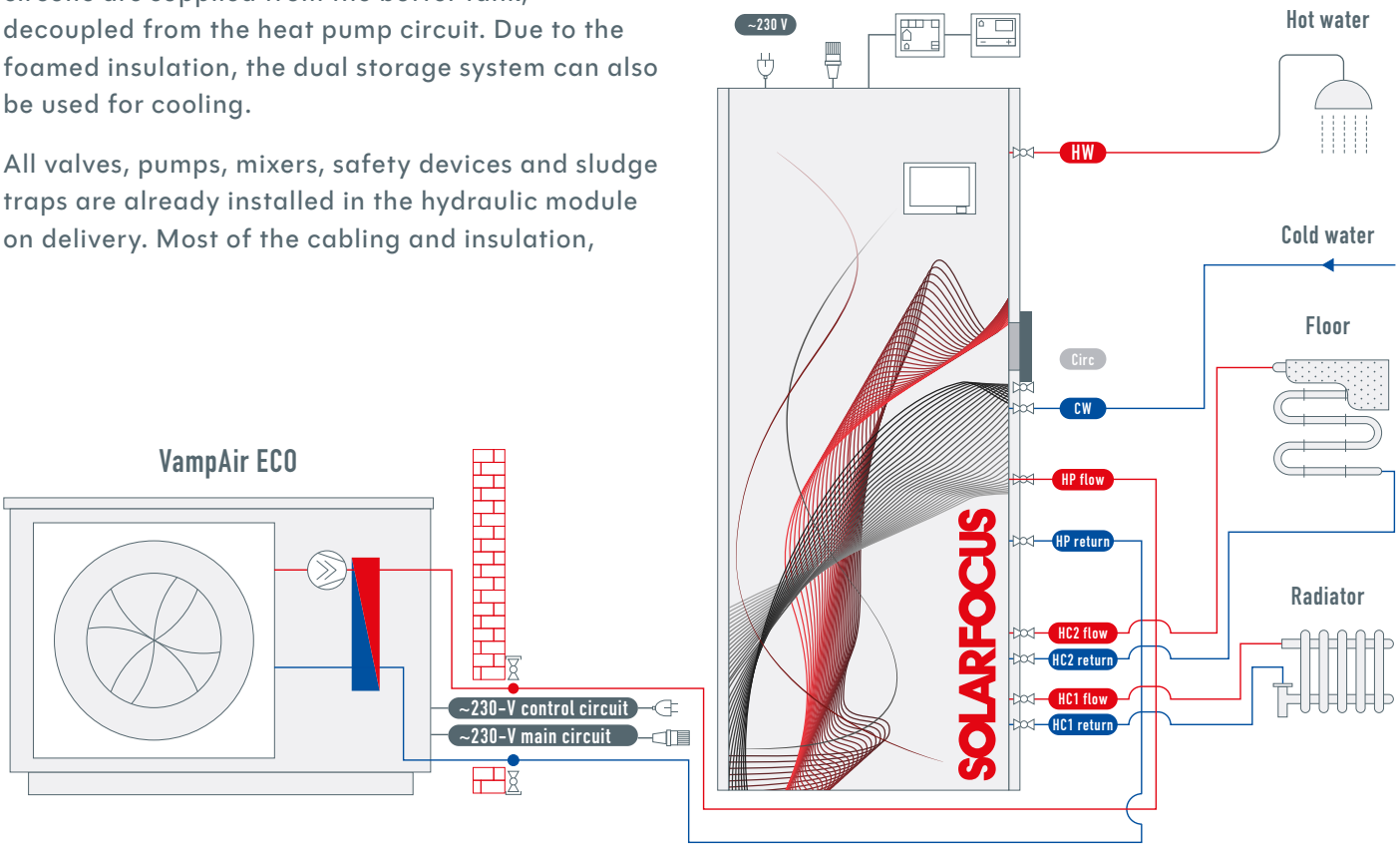
Your key benefits

- Compact dual storage system (Ø 750 mm) with 255-litre buffer tank volume and 255-litre hot water volume
- Optional hot water circulation
- Up to 2 mixed heating circuits can be integrated
- Electric heating element – optionally steplessly adjustable
- Cooling mode possible
- Intuitive 7" touch display with ecomanager touch controller

Everything you need – in the smallest space with the highest quality

In combination with the vampair ECO air source heat pump, the hydrotower easy storage system with integrated hydraulic module forms a compact heating and cooling system for new and renovated buildings. The storage system consists of a 255-litre buffer tank and an attached, hydraulically separated 255-litre hot water tank. The heating circuits are supplied from the buffer tank, decoupled from the heat pump circuit. Due to the foamed insulation, the dual storage system can also be used for cooling.

All valves, pumps, mixers, safety devices and sludge traps are already installed in the hydraulic module on delivery. Most of the cabling and insulation, which usually take a long time to install on site, have already been installed at the factory.



hydrotower *PVmax* system tank

Your key benefits

- 800-litre stratified buffer tank
- Hygienic hot water preparation with fresh water module
- Optional hot water circulation
- Up to 2 mixed heating circuits can be integrated
- Electric heating element – optionally steplessly adjustable
- Can be expanded with cooling mode
- Intuitive 7" touch display with **eco**manager *touch* controller

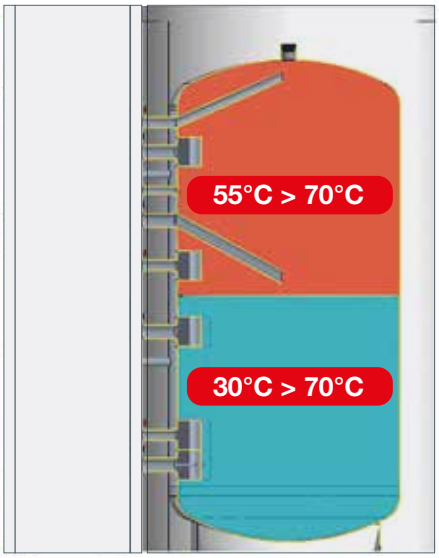
hydrotower PVmax system tank as a thermal storage battery

Conventional systems on the market often have the problem that the heat pump does not start during the day due to higher outside temperatures and valuable PV electricity has to be fed into the grid. During the night, the outside temperature drops, and the house has to be heated. The heat pump starts and expensive electricity is purchased from the grid.

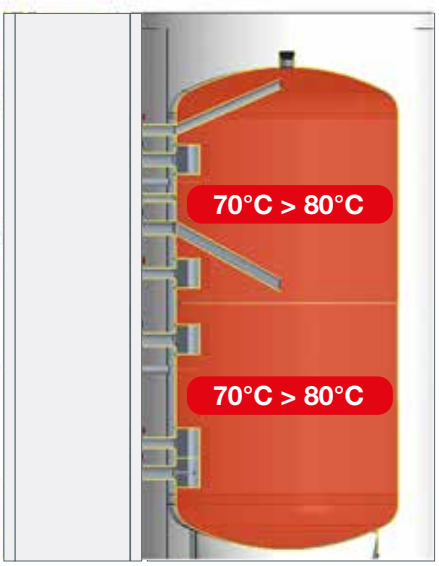
This is exactly where the hydrotower PVmax storage system comes in. The heat pump heats the storage system to up to 70°C during the day when free or cheap electricity is available.

If the outside temperature drops during the night, the heat required to heat the house is taken from the storage system - without the heat pump having to start. The electricity self-generated during the day can therefore be used effectively for heating during the night.

To heat 1 litre of water by 1°C, 1.16 Wh of thermal energy is required. An 800-litre storage tank heated from 30°C to 70°C has thus taken 37 kWh of thermal energy.



hydrotower *PVmax* **cross-section**

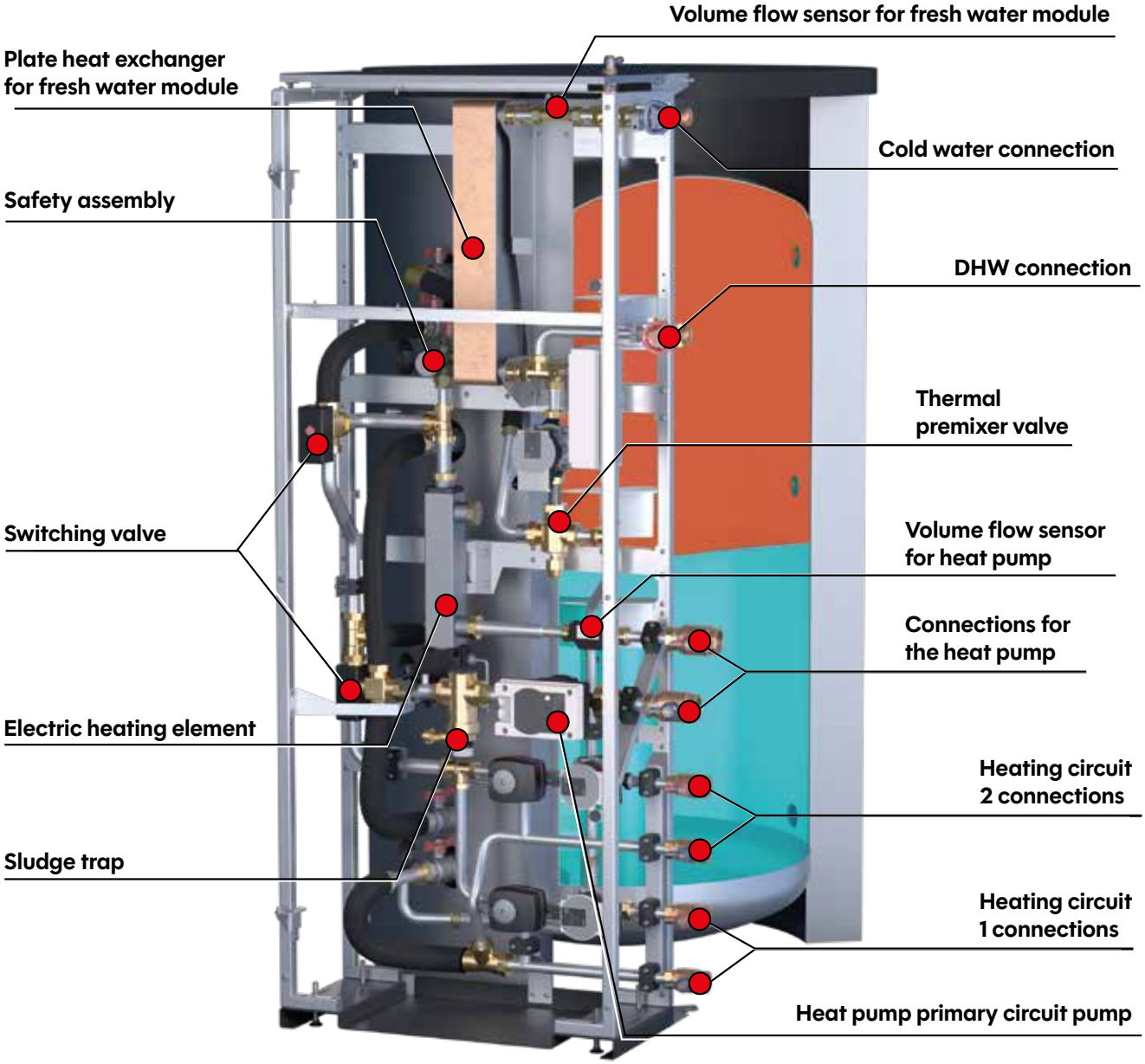


hydrotower *PVmax* **cross-section**

Stepless electric heating element 0–100%

To increase the storage capacity and the degree of self-sufficiency even further, the storage temperature can be increased to up to 80°C with the help of the built-in electric heating element. The electric heating element is also optionally available in a stepless version. Alternatively, the stepless electric heating element can also be activated in summer solely for hot water preparation instead of the heat pump.

The technology in detail



How is the domestic hot water heated?

With the hydrotower PVmax, hot water is heated via an integrated fresh water module. This heats the domestic hot water as required by using an instantaneous water heater. Only when hot water is required is the fresh water heated to the desired temperature with the help of a stainless steel plate heat exchanger and the heating water.

FRESH WATER SYSTEM

Stockpiling hot water for days on end is a thing of the past. Hot water is on tap – hygienic and convenient.

Hybrid system – other integration options

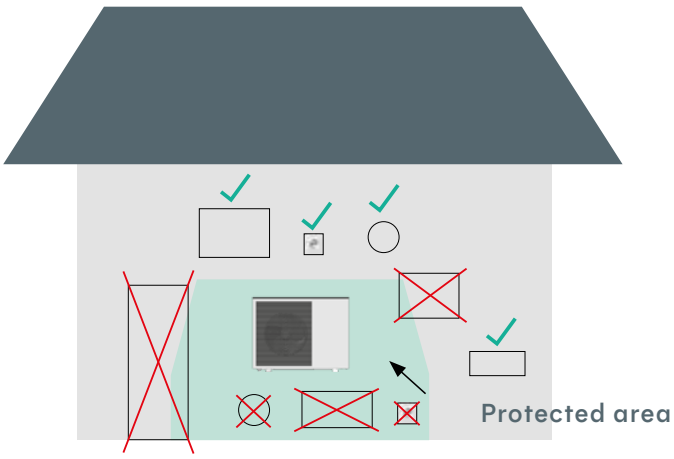
The storage system offers the option of integrating additional energy generators into the hybrid system via three additional sleeves. This means that a water-operated wood-burning stove, pellet boiler or existing oil/gas boiler can be integrated just as easily as a solar charging module for a thermal solar system. If cooling of the heating surfaces (concrete core activation, suspended ceiling or underfloor heating) by means of a heat pump is required, cooling can be easily achieved using an optional cooling valve, either via a bypass circuit or by integrating an additional cooling tank.

Installation instructions

Protected area

The protected area when installing the vampair ECO extends from the top edge of the heat pump to the floor, as well as a distance of one metre around the heat pump. Special instructions apply to this defined protected area:

- There must be no potential sources of ignition in the protected area (open flames, hot surfaces, mechanically or electrically generated sparks, etc.).
- No building openings (windows, doors, shafts, vents, etc.) may be located in the protected area.
- The protected area must not extend beyond the boundaries of the property.
- Below the heat pump (e.g. when installed on the roof) is always a protected area, even if the distance to the ground is more than one metre.
- To prevent vehicles from touching the external unit, a collision guard must be installed if necessary. This must be positioned outside the protected area.

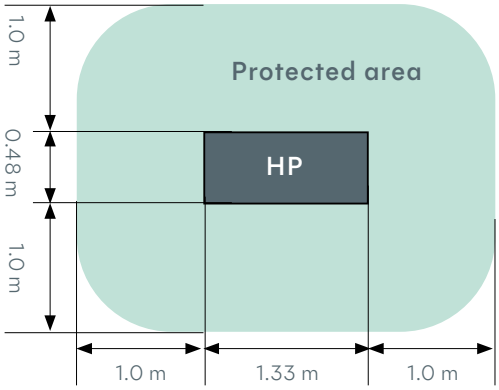


There must be no building openings or ignition sources in the protected area

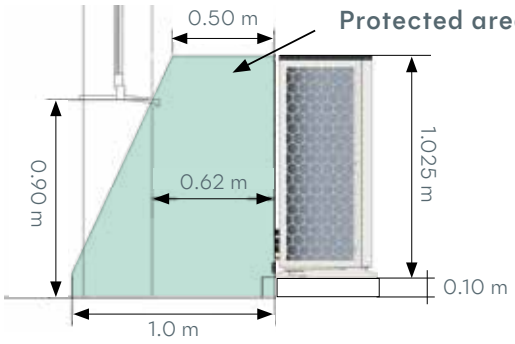
The following could be potential sources of ignition:

- Hot surfaces, such as quartz radiators or halogen radiators
- Flames and hot gases; e.g. hot air fans, mechanically generated sparks; e.g. impact sparks
- Electrical systems; e.g. lights, light switches or sockets
- Static electricity from e.g. people or tools
- Lightning strike

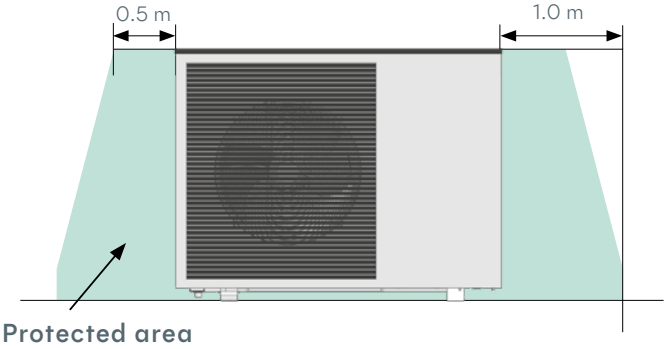
Protected area - top view



Protected area - side view

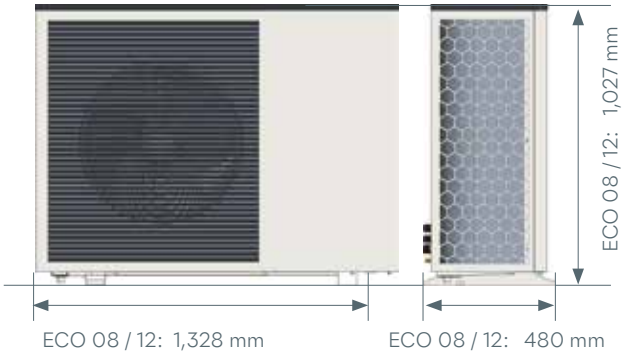


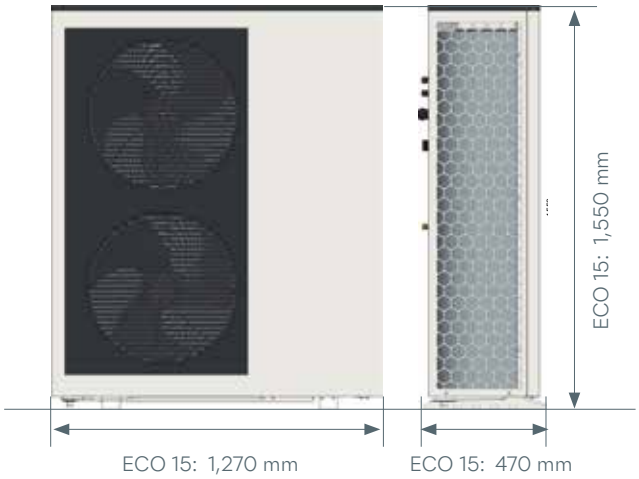
Protected area - front view



Below the heat pump is always a protected area, even if the distance to the ground is more than one metre.

Technical specifications





Air source heat pump vamp^{air} ECO		08	12	15
Pdesignh 35°C	[kW]	7.34	9.83	13.13
Pdesignh 55°C	[kW]	7.31	9.60	12.41
SCOP moderate climate 35°C		5.23	5.48	5.34
SCOP moderate climate 55°C		3.89	4.12	4.03
ηs seasonal space heating energy efficiency, moderate climate 35 / 55°C	[%]	206 / 153	216/162	211/158
Product label efficiency class heating 35°C / 55°C			A+++ / A+++	
Heat output at A7/W35	[kW]	2.9 - 9.6	3.7 - 12.2	5.3 - 15.9
Heating capacities and design recommendations				
Max. heat output at A-10/W35	[kW]	7.34	9.83	13.14
Max. heat output at A-7/W35	[kW]	8.5	9.7	14.5
Max. heat output at A-7/W55	[kW]	7.3	9.6	12.4
Recommended max. design heat output at normal outdoor temperature of -10°C including hot water/blocking times, bivalence temperature -4°C	[kW]	11	17	21
Recommended max. design heat output at normal outdoor temperature of -12°C including hot water/blocking times, bivalence temperature -6°C	[kW]	9	15	19
Recommended max. design heat output at normal outdoor temperature of -14°C including hot water/blocking times, bivalence temperature -8°C	[kW]	7	13	17
Efficiency data and coefficient of performance as per EN 14511				
COP at A7/W35		5.14	5.2	4.15
COP at A2/W35		4.72	4.19	3.84
COP at A-7/W35		3.30	2.73	2.85
COP at A7/W55		3.01	3.21	3.06
COP at A-7/W55		2.24	2.35	2.20
COP at A-10/W55		2.13	2.30	2.13
Noise emissions:				
Sound power level (EN12102)	[dB(A)]	48.3	50.3	55.1
Sound pressure level at 5 m distance, free-standing, Silent Mode	[dB(A)]	25	27	30
Sound pressure level at 3 m distance, free-standing, Silent Mode	[dB(A)]	29.5	21.5	34.5
Max. sound power level (Day / Silent)	[dB(A)]	62 / 47	64 / 49	67 / 52
Design:				
Compressor electrical connection		220 - 240 VAC, 50 Hz		380 - 415 V 3N~ 50 Hz
Max. compressor operating current	[A]	16	21	12
Refrigerant		R290 / 0.9 kg	R290 / 1.2 kg	R290 / 1.75 kg
Heating flow/return connections		G1" flat seal		G1-1/4" flat seal
Max. heating flow temperature	[°C]	70		
Heating heat source operating limit	[°C]	- 22° / + 38		
Dimensions (W/H/D)	[mm]	1328 / 1027 / 480		1270 / 1550 / 470
Minimum heating water flow rate	[m³/h]	1.5	2.1	2.5

SOLARFOCUS

Biomass heating | Heat pumps | Solar energy systems

Pellet boiler

pelletelegance:	10 to 24 kW
octoplus:	15 to 22 kW
ecotopzero:	15 to 24 kW
pellettop:	35 to 70 kW
ecopellzero:	70 to 120 kW
maximus:	150 to 300 kW

Dual fuel boiler for wood and pellets

therminator II dual fuel:	22 to 60 kW

Log wood boiler

therminator II SH:	18 to 60 kW

Wood chip boiler

ecohackzero:	30 to 120 kW
maximus:	150 to 250 kW

Air source heat pump

vampair PRO 08 - 10
vampair PRO 12 - 15
vampair PRO 20
vampair ECO 08

Solar energy system

CPC collector
Sunnyline
SUNeco

Photovoltaic system

PV modules
Batteries
Heat pump and PV

SOLARFOCUS GmbH, A-4451 St. Ulrich/Steyr, Werkstraße 1
www.solarfocus.at | office@solarfocus.at | T: 07252 50 002 - 0

SOLARFOCUS GmbH, D-64653 Lorsch, Marie-Curie-Str. 14-16
www.solarfocus.de | office@solarfocus.de | T: 06251 13 665 - 00

SOLARFOCUS Schweiz GmbH, CH-6246 Altishofen, Feldmatt 12
www.solarfocus.ch | info@solarfocus.ch | T: 041 984 08 80

SOLARFOCUS GmbH, Villanova Mondovì (CN), Largo Annunziata 26
www.solarfocus.com | italia@solarfocus.eu | T: 0333 816 86 41