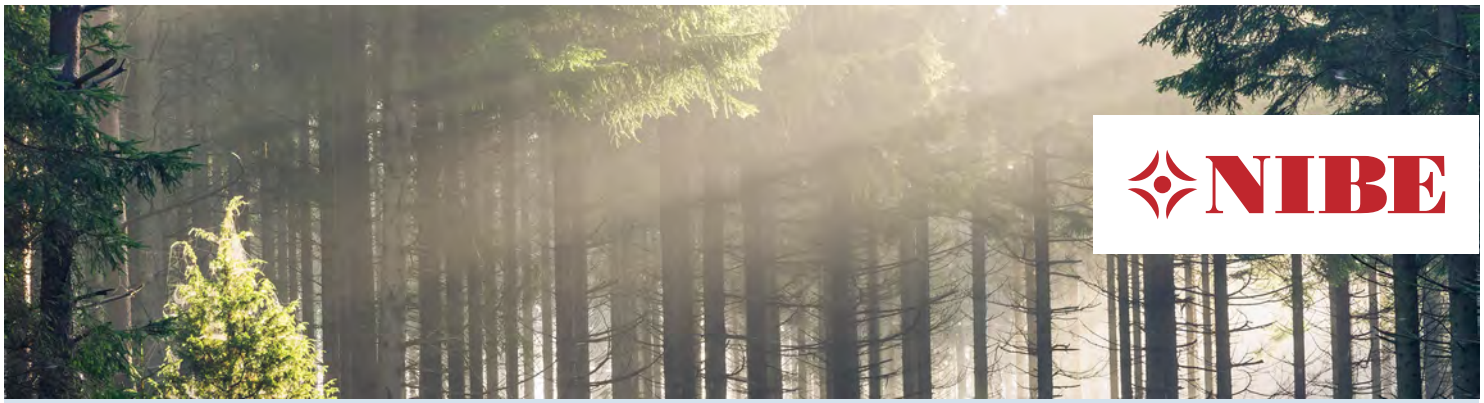


# Indoor module
# NIBE VVM 310

**The NIBE VVM 310 is designed for combination with any NIBE air/water heat pump to create a highly-efficient, flexible climate system for your home.**

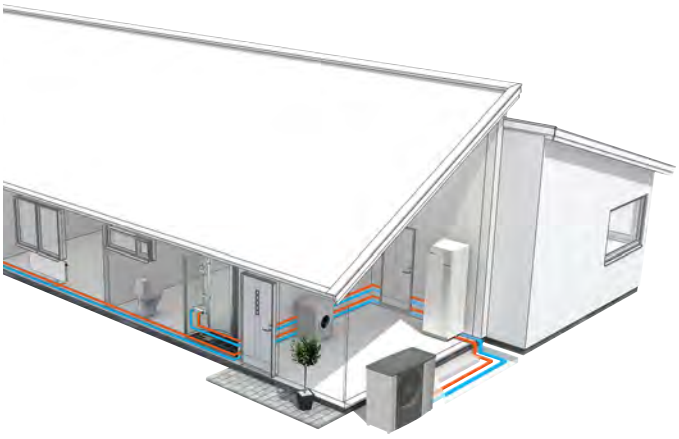
The NIBE VVM 310 has a smart, user-friendly control system which provides efficient heating/cooling and hot water with high performance. Installation of the NIBE VVM 310 is very simple since the water heater, electric additional heat and self-regulating circulation pumps are included.

Thanks to smart technology, the product gives you control over your energy consumption and will be a key part of your connected home. The efficient control system automatically adjusts the indoor climate for high comfort, and you do nature a favour at the same time.

- **Combine NIBE VVM 310 with a NIBE air/water heat pump for an energy- efficient climate system.**
- **Energy-saving smart technology with user-friendly control.**
- **Part of your smart home – Control your comfort online using NIBE Uplink.**

# This is how NIBE VVM 310 works

## Installation method



VVM 310 consists of hot water coil for hot water heating, immersion heater, circulation pumps, buffer vessel and control system.

VVM 310 is directly adapted for connection and communication with NIBE air/water heat pump, which together constitute a complete heating installation.

The air/water heat pump absorbs energy from the outdoor air and transforms this into heat energy for the indoor air. The indoor module distributes heat and domestic hot water.

NIBE air/water heat pump covers most of the heating and hot water requirement down to the heat pump's stop temperature. If the outdoor temperature drops to a level below the heat pump's stop temperature, all heating is then provided using NIBE VVM 310.

VVM 310 is easy to install. All pipe connections are easily accessible. This is especially useful for the replacement market.

A system with VVM 310 and NIBE's compatible air/water heat pumps allows a complete, energy-saving installation. VVM 310 can be supplemented with several different accessories.

### OUTDOOR MODULES

### Compatible air/water heat pumps

#### F2040

**F2040-12**
Part no. 064 092

**F2040-16**
Part no. 064 108

#### F2050

**F2050-6**
Part no. 064 328

**F2050-10**
Part no. 064 318

#### F2120

**F2120-16 3x400V**
Part no. 064 139

#### S2125

**S2125-8 1x230V**
Part no. 064 220

**S2125-8 3x400V**
Part no. 064 219

**S2125-12 1x230V**
Part no. 064 218

**S2125-12 3x400V**
Part no. 064 217

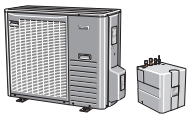
#### NIBE SPLIT HBS 05

**AMS 10-12**
Part no. 064 110

**HBS 05-12**
Part no. 067 480

**AMS 10-16**
Part no. 064 035

**HBS 05-16**
Part no. 067 536



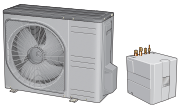
#### NIBE SPLIT

**AMS 20-6**
Part no. 064 235

**HBS 20-6**
Part no. 067 668

**AMS 20-10**
Part no. 064 319

**HBS 20-10**
Part no. 067 819



Check the software version of compatible older NIBE air/water heat pumps, see section "Software version in NIBE air/water heat pump".

# Design

VVM 310 is fitted with intelligent control. This makes for easy operation while always enabling the indoor module to be used as efficiently as possible. The control also manages the automatic shunt and circulation pumps. Current temperatures and set values can easily be shown on the display.

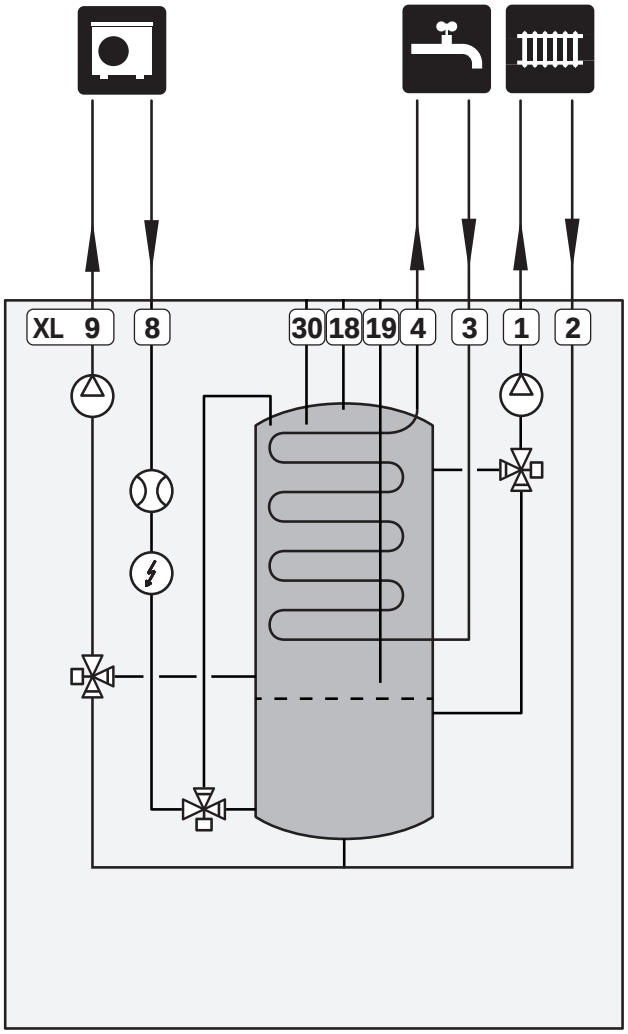
The insulation is made of moulded Neopor, which provides excellent heat insulation.

The outer casing is made of white, powder-coated, steel plate.

# Principle of operation

Principle of operation with air/water heat pump, hot water and a heating system.

The heat is retrieved from the outdoor air by an air/water heat pump, where the refrigerant, which circulates in a closed system, transfers the heat from the heat source (the outdoor air) to the indoor module VVM 310.



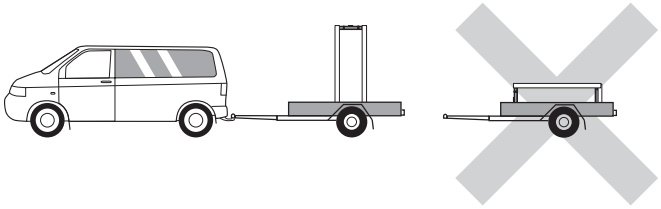

| | |
|---|---|
| XL1 | Connection, heating medium flow line |
| XL2 | Connection, heating medium return line |
| XL3 | Connection, cold water |
| XL4 | Connection, hot water |
| XL8 | Connection, docking from heat pump |
| XL9 | Connection, docking to heat pump |
| XL18 | Connection, docking in high temp |
| XL19 | Connection, docking out high temp |
| XL30 | Connection, expansion vessel |

# Good to know about VVM 310

## Transport and storage

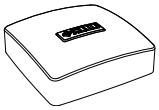
VVM 310 should be transported and stored vertically in a dry place.

However, the VVM 310 can be carefully laid on its back when being moved into a building.

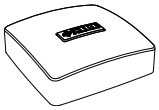


## Supplied components

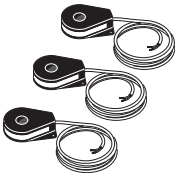
Local differences in the enclosed kit may occur. See relevant installer manual for more information.



Outside sensor



Room sensor



Current sensor

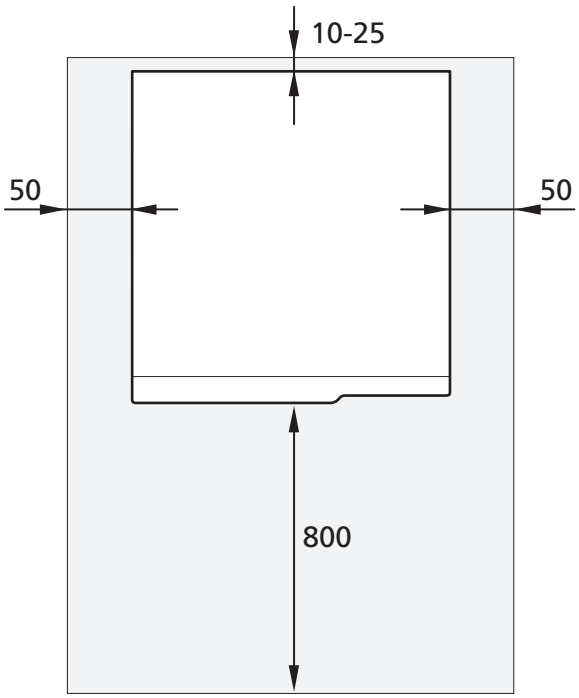
## Installation and positioning

- Place VVM 310 on a solid foundation indoors that can take its weight.
- The space where VVM 310 is located must be frost-free.
- Because water can exit the safety valve [1] for hot water, when connected to VVM 310, the space where VVM 310 is placed must be provided with a floor drain.

[1] Not enclosed.

### INSTALLATION AREA

Leave a free space of 800 mm in front of the product. All service on VVM 310 can be carried out from the front.




Leave 10 – 25 mm free space between VVM 310 and the wall behind for routing cables and pipes.

# Installation

## Pipe installation

The heating medium side and the domestic hot water side must be fitted with the necessary safety equipment in accordance with the applicable regulations.

### EQUIPMENT

VVM 310 is equipped with a drain valve and a reversing valve. In addition, VVM 310 is equipped with climate-controlled automatic shunt with outdoor and supply temperature sensors, shunt valve, charge and circulation pump.

### EXPANSION VESSEL

Dimensioned as 5 % of the maximum system volume (i.e. 270 litres plus maximum circulating volume in the heating circuit). Equip the product with safety valve and expansion vessel, as these are not enclosed with the product on delivery.

### WASTE WATER

Water may drip from the safety valve's overflow pipe. The overflow pipe must be routed to a suitable drain, so hot water splashes cannot cause harm. The entire length of the overflow pipe must be inclined to prevent water pockets, and must also be frost-proof. The overflow pipe must be at least the same size as the safety valve. The overflow pipe must be visible and its mouth must be open and not placed close to electrical components.

### NIBE DIM

The system requires the radiator circuit to be designed for a low temperature heating medium. At the lowest dimensioned outdoor temperature (DOT), the highest recommended temperatures are 55 °C on the supply line and 45 °C on the return line. VVM 310 can cope with up to 70 °C. For correct dimensioning of the heat pump, NIBE dimensioning program NIBE DIM is recommended.

### HEATING MEDIUM

A climate system is a system that regulates indoor comfort with the help of the control system in VVM 310 and for example radiators, underfloor heating/cooling, fan convectors etc.

- Install expansion vessel and pressure gauge in connection XL30.
- Install safety valve. The recommended opening pressure is 0.25 MPa (2.5 bar). For information about max. opening pressure, see the technical specifications.
- Install shut off valves (installed as close to VVM 310 as possible.
- When connecting to a system with thermostats on all radiators (or underfloor heating coils), either a bypass valve must be fitted or some of the thermostats must be removed to ensure there is sufficient flow.

### COLD AND HOT WATER

A mixer valve must also be installed, if the factory setting for hot water is changed. National regulations must be observed.

Ensure that incoming water is clean. When using a private well, it may be necessary to supplement with an extra water filter.

For more information see nibe.eu.

### INSTALLATION ALTERNATIVE

VVM 310 can be connected in several ways. The necessary safety equipment must be installed in accordance with current regulations for all installation options.

See nibe.eu for more detailed installation options.

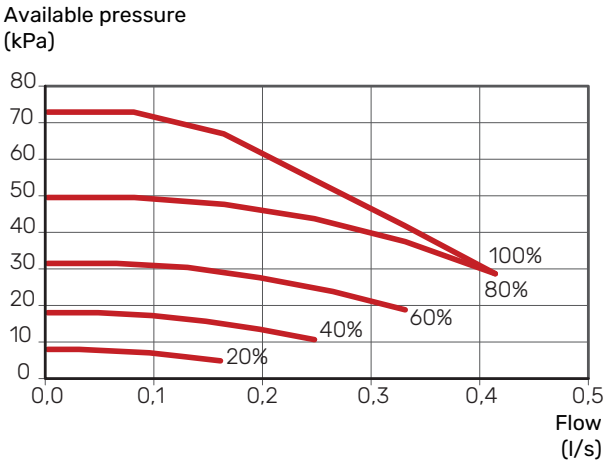
### SOFTWARE VERSION IN NIBE AIR/WATER HEAT PUMP

Compatible NIBE air/water heat pump must be equipped with a control board with a display with the minimum software version indicated in the following list. The version of the control board is displayed in the heat pump's display (if applicable) at start-up.

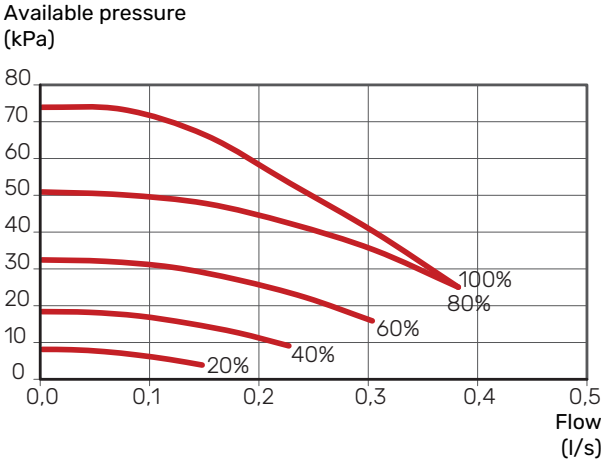
| Product | Software version |
|---|---|
| F2020 | 118 |
| F2025 | 55 |
| F2026 | 55 |
| F2030 | all versions |
| F2040 | all versions |
| F2120 | all versions |
| S2125 | all versions |
| NIBE SPLIT HBS 05:<br>AMS 10-6 + HBS 05-6<br>AMS 10-8 + HBS 05-12<br>AMS 10-12 + HBS 05-12<br>AMS 10-16 + HBS 05-16 | all versions |
| NIBE SPLIT HBS 20:<br>AMS 20-6 + HBS 20-6 | all versions |

## PUMP CAPACITY DIAGRAM

### Available pressure circulation pump, GP1




### Available pressure, charge pump, GP12




## PIPE DIMENSIONS AND SYSTEM FLOWS

The pipe dimension should not be less than the recommended pipe diameter according to the table. However, each system must be dimensioned individually to manage the recommended system flows.

### Minimum system flows

The installation must be dimensioned to manage at least the minimum defrosting flow at 100% pump operation, see table.

| Air/water heat pump | Minimum flow during defrosting (100% pump speed (l/s) | Minimum recommended pipe dimension (DN) | Minimum recommended pipe dimension (mm) |
|---|---|---|---|
| AMS 10-12/ HBS 05-12 | 0.29 | 20 | 22 |
| AMS 10-16/ HBS 05-16 | 0.39 | 25 | 28 |

| Air/water heat pump | Minimum flow during defrosting (100% pump speed (l/s) | Minimum recommended pipe dimension (DN) | Minimum recommended pipe dimension (mm) |
|---|---|---|---|
| AMS 20-6/ HBS 20-6 | 0.19 | 20 | 22 |
| AMS 20-10/ HBS 20-10 | | | |

| Air/water heat pump | Minimum flow during defrosting (100% pump speed (l/s) | Minimum recommended pipe dimension (DN) | Minimum recommended pipe dimension (mm) |
|---|---|---|---|
| F2040-12 | 0.29 | 20 | 22 |
| F2040-16 | 0.39 | 25 | 28 |

| Air/water heat pump | Minimum flow during defrosting (100% pump speed (l/s) | Minimum recommended pipe dimension (DN) | Minimum recommended pipe dimension (mm) |
|---|---|---|---|
| F2050-6 | 0.19 | 20 | 22 |
| F2050-10 | | | |

| Air/water heat pump | Minimum flow during defrosting (100% pump speed (l/s) | Minimum recommended pipe dimension (DN) | Minimum recommended pipe dimension (mm) |
|---|---|---|---|
| F2120-16 (3x400V) | 0.38 | 25 | 28 |

| Air/water heat pump | Minimum flow during defrosting (100% pump speed (l/s) | Minimum recommended pipe dimension (DN) | Minimum recommended pipe dimension (mm) |
|---|---|---|---|
| S2125-8 (1x230V) | 0.32 | 25 | 28 |
| S2125-8 (3x400V) | | | |
| S2125-12 (1x230V) | | | |
| S2125-12 (3x400V) | | | |

An undersized system can result in damage to the product and lead to malfunctions.

# Electrical installation

## ELECTRICAL CONNECTIONS

Electrical installation and service must be carried out under the supervision of a qualified electrician. Cut the current with the circuit breaker before carrying out any servicing. Electrical installation and wiring must be carried out in accordance with the stipulations in force.

### General

All electrical equipment, except the outdoor sensors, room sensors and the current sensors are ready connected at the factory.

- Disconnect the indoor module before insulation testing the house wiring.
- If the building is equipped with an earth-fault breaker, VVM 310 should be equipped with a separate one.
- The electrical wiring diagram for the indoor module can be found in the Installer manual.
- A screened three-core cable is used as the communication cable.
- Communication and sensor cables to external connections must not be laid close to high current cables.
- The minimum area of communication and sensor cables to external connections must be 0.5 mm² up to 50, for example EKKX or LiYY or equivalent.

### Power connection

VVM 310 must be installed with a disconnection option on the supply cable. Minimum cable area must be sized according to the fuse rating used. The enclosed cable (length approx2 m) for incoming electricity is connected to terminal block X1 on the immersion heater board. All installations must be carried out in accordance with current norms and directives. The connection cable can be found on the reverse of VVM 310.

### Miniature circuit-breaker

The indoor module and a large proportion of its internal components are internally fused by a miniature circuit breaker.

### Temperature limiter

The temperature limiter cuts the power supply to the electric additional heat, if the temperature rises to between 90 and 100 °C and it is reset manually.

## SETTINGS

### Electric additional heat – maximum output

The immersion heater can be set up to a maximum of 12 kW. Delivery setting is 8 kW.

The immersion heater output is divided into nine steps, according to the table in the Installer Manual.

### Emergency mode

When the indoor module's switch is set to emergency mode, only the most essential functions are activated.

- The hot water capacity is reduced.
- The load monitor is not connected.
- Fixed temperature in the supply line.

# Maintenance of VVM 310

## Regular checks

A minimum level of maintenance is required. Only safety valves require checking. All essential components can be accessed from the front. This facilitates service and maintenance.

If anything abnormal occurs, messages about the malfunction appear in the display in the form of various alarm texts.

# Functions

## Control, general

The indoor temperature depends on several different factors. Sunlight and heat emissions from people and household machines are normally sufficient to keep the house warm during the warm seasons. When it gets colder outside, the climate system needs to help heat the house. The colder it is outside, the warmer radiators and underfloor heating systems have to be.

Control of the heat production is performed based on the "floating condensing" principle, which means that the temperature level needed for heating at a specific outdoor temperature is produced based on collected values from the outdoor and supply temperature sensors. The room sensor can also be used to compensate the deviation in room temperature.

## Heat production

The supply of heat to the house is regulated in accordance with the heating curve selected setting. After adjustment, the correct amount of heat for the current outdoor temperature is supplied. The supply temperature will oscillate around the theoretically desired value.

### OWN CURVE

VVM 310 has pre-programmed non-linear heating curves. It is also possible to create your own defined curve. This is an individual linear curve with a number of break points. You select break points and the associated temperatures.

## Hot water production

Hot water charging starts when the temperature has fallen to the set start temperature. Hot water charging stops when the hot water temperature at the hot water sensor has been reached.

For temporary higher hot water demand, there is a function that allows the temperature to be raised temporarily for up to 12 hours or by a one time increase (can be selected in the menu system).

With the Smart Control function activated, VVM 310 learns how much hot water is used and when. The Smart Control function memorises the previous week's hot water consumption and adapts the hot water temperature for the coming week to ensure minimal energy consumption.

It is also possible to set VVM 310 in holiday mode, which means that the lowest possible temperature is achieved without the risk of freezing.

## Additional heat only

### ADDITIONAL HEAT ONLY

VVM 310 can be used with additional heat only (electric boiler) to produce heating and hot water, for example before the outdoor module is installed.

## Alarm indications

The status lamp lights red in the event of an alarm and the display shows detailed information depending on the fault. An alarm log is created with each alarm containing a number of temperatures, times and operating status.

# The display

VVM 310 is controlled using a clear and easy to use display.

Instructions, settings and operational information are shown on the display. You can easily navigate between the different menus and options to set the comfort or obtain the information you require.

The display unit is equipped with a USB socket that can be used to update the software and save logged information in VVM 310.

Visit nibeuplink.com and click the "Software" tab to download the latest software for your installation.

# NIBE Uplink

Using the Internet and NIBE Uplink, you can obtain a quick overview and the present status of the installation and the heating in your home. You can obtain a good overall view, allowing you to monitor and control the heating and hot water comfort effectively. If the system is affected by a malfunction, you receive an alert via e-mail that allows you to react quickly.

NIBE Uplink also gives you the opportunity to control the comfort in your home easily, no matter where you are.

## RANGE OF SERVICES

You have access to different levels of service via NIBE Uplink. A basic level that is free and a premium level where you can select different extended service functions for a fixed annual subscription fee (the subscription fee varies depending on the selected functions).

NIBE Uplink also available as an app from App Store and Google Play.

## INSTALLATION AND ASSOCIATED EQUIPMENT REQUIREMENTS

NIBE Uplink needs the following in order to communicate with your VVM 310:

- network cable
- Internet connection to which VVM 310 can be connected
- web browser with JavaScript activated
- account on nibeuplink.com

We recommend our mobile app for NIBE Uplink.

For more information, visit nibeuplink.com.

## NIBE SMART PRICE ADAPTION™

Smart Price Adaption is not available in all countries. Contact your NIBE dealer for more information.

Smart Price Adaption adjusts the system's consumption according to the time of day when electricity prices are lowest. This allows for savings, provided that an hourly rate subscription has been signed with the electricity supplier.

The function is based on hourly rates for the coming day being downloaded via NIBE Uplink. To use the function, an Internet connection and account on NIBE Uplink are necessary.

## SMART HOME

When you have a smart home system that can communicate with NIBE Uplink, you can control the installation via an app by activating the "smart home" function.

By allowing connected units to communicate with NIBE Uplink, your heating system becomes a natural part of your homesmart home and gives you the opportunity to optimise the operation.

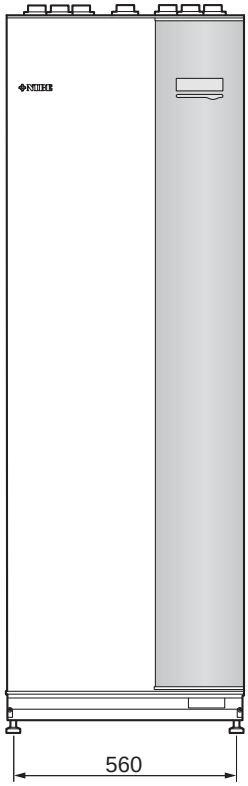
Remember that the “smart home” function requires NIBE Uplink in order to work.

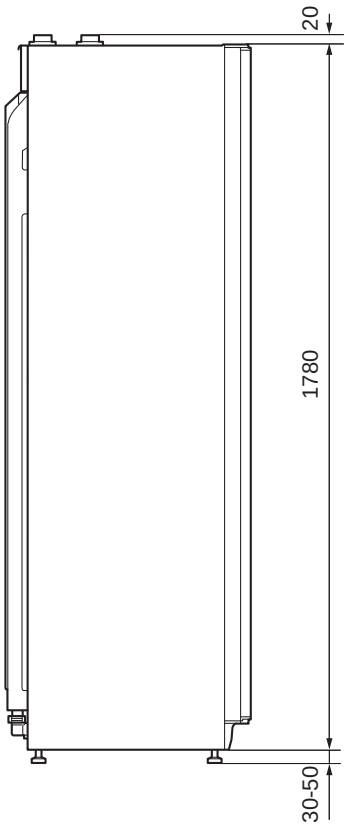
## NIBE SMART ENERGY SOURCE™

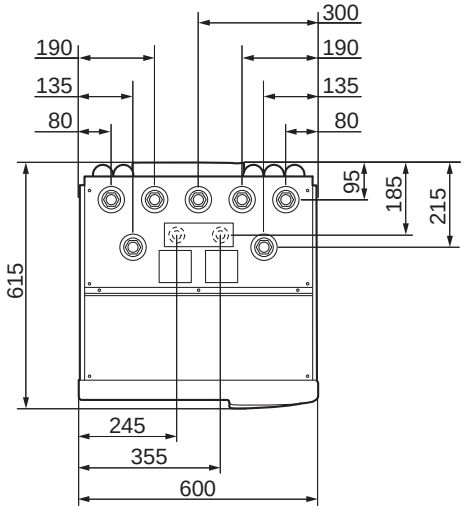
Smart Energy Source™ prioritises how / to what extent each docked energy source will be used. Here you can choose if the system is to use the energy source that is cheapest at the time. You can also choose if the system is to use the energy source that is most carbon neutral at the time.

# Technical data

## Dimensions



# Technical specifications

| 3 x 400 V | | |
|---|---|---|
| **Electrical data** | | |
| Maximum additional power (internal) | kW | 12 |
| Max available heating output from VVM 310 with extra additional heat (for example ELK 15) | kW | 27 |
| Maximum connectable external additional heat | kW | 15 |
| Rated voltage | | 400V 3N~50Hz |
| Maximum operating current | A | 19.4 |
| Fuse | A | 20 |
| Output, Heating medium pump | W | 3 – 45 |
| Output, charge pump | W | 3 – 45 |
| **Heating medium circuit** | | |
| Energy class circ-pump | | low energy |
| Energy class charge pump | | low energy |
| Maximum system pressure heating medium | MPa | 0.3 (3 bar) |
| Max HM temp | °C | 70 |
| **Pipe connections** | | |
| Heating medium | | G20 int. |
| Hot water connection | | G20 int. |
| Cold water connection | | G20 int. |
| Heat pump connections | | G20 int. |
| Connection for expansion vessel | | G20 int. |

| Miscellaneous | | |
|---|---|---|
| **Indoor module** | | |
| Volume hot water coil | litre | 17 |
| Volume, total indoor module | litre | 270 |
| Volume buffer vessel | litre | 50 |
| Cut-off pressure, hot water coil | MPa (bar) | 1.0 (10 bar) |
| Max permitted pressure in indoor module | MPa (bar) | 0.3 (3 bar) |
| **Capacity hot water heating According to EN 16147** | | |
| Amount of hot water (40 °C)* | litre | 270 |
| **Dimensions and weight** | | |
| Width | mm | 600 |
| Depth | mm | 615 |
| Height (without base) | mm | 1,800 |
| Height (with base) | mm | 1,830 – 1,850 |
| Required ceiling height | mm | 1,910 |
| Weight (excl. packaging and without water) | kg | 144 |
| **Part no.** | | |
| Part number, EMK 310 included (only for Germany, Switzerland and Austria) | | 069 084 |
| Part no. | | 069 430 |

*Applies in the case of Lux comfort mode, tap flow 8 litres/minute and incoming cold water 10° C. Increased hot water comfort can be obtained at lower tap flow.

# Accessories

Detailed information about the accessories and complete accessories list available at nibe.eu.

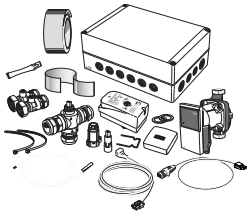
Not all accessories are available on all markets.

## Active cooling ACS 310*

ACS 310 is an accessory that enables VVM 310 to control the production of cooling.

Part no. 067 248

*The accessory requires that NIBE air/water heat pump is installed.



## Docking kit SCA 35

SCA 35 means that VVM 310 can be connected to thermal solar heating.

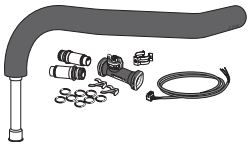
Part no. 067 245

## Energy measurement kit EMK 310*

This accessory is installed internally and used to measure the amount of energy VVM 310 supplies to hot water and heating for the building.

Part no. 067 246

*EMK 310 is included in Germany, Switzerland and Austria..

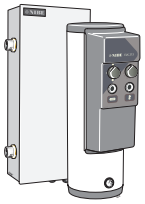


## External electric additional heat ELK

This accessory requires accessory DEH 310 (step controlled additional heat).

**ELK 15**
15 kW, 3 x 400 V
Part no. 069 022

**ELK 213**
7–13 kW, 3 x 400 V
Part no. 069 500



## Extra shunt group ECS

This accessory is used when VVM 310 is installed in houses with two or more different heating systems that require different supply temperatures.

**ECS 40 (Max 80 m²)**
Part no 067 287

**ECS 41 (approx. 80-250 m²)**
Part no 067 288

## Exhaust air module F135*

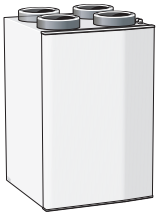
F135 is an exhaust air module specially designed to combine recovery of mechanical exhaust air with an air/water heat pump. Indoor module/control module controls F135.

Part no. 066 075

*The accessory requires that NIBE air/water heat pump is installed.

## HRV unit ERS

This accessory is used to supply the accommodation with energy that has been recovered from the ventilation air. The unit ventilates the house and heats the supply air as necessary.



**ERS S10-400[1]**
Part no. 066 163

**ERS 20-250[1]**
Part no. 066 068

1 A preheater may be required.

## Control unit for external energy source DEH 310 (oil/electricity/gas)

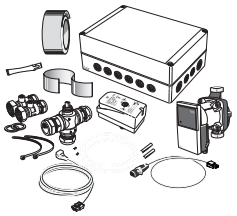
Part no. 067 249

## Pool heating POOL 310*

POOL 310 is an accessory that enables pool heating with VVM 310.

Part no. 067 247

*The accessory requires that NIBE air/water heat pump is installed.



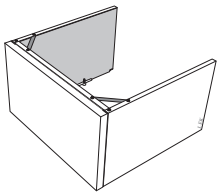
## Top cabinet TOC 30

Top cabinet, which conceals any pipes/ventilation ducts.

**Height 245 mm**
Part no. 067 517

**Height 345 mm**
Part no. 067 518

**Height 385-635 mm**
Part no. 067 519



# Sustainable energy solutions since 1952

NIBE has been manufacturing energy-efficient and sustainable climate solutions for your home for 70 years. It all began in Markaryd, in the southern Swedish province of Småland, and we recognise our Nordic heritage by utilising the power of nature. We combine renewable energy with smart technology to offer efficient solutions, allowing us to work together to create a more sustainable future.

Regardless of whether it is a chilly winter's day or a warm afternoon in the summer sun, we need a balanced indoor climate that allows us to enjoy a comfortable life, whatever the weather. Our extensive range of products supply your home with cooling, heating, ventilation and hot water, making it possible for you to create a pleasant indoor climate with little impact on the environment.

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