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.

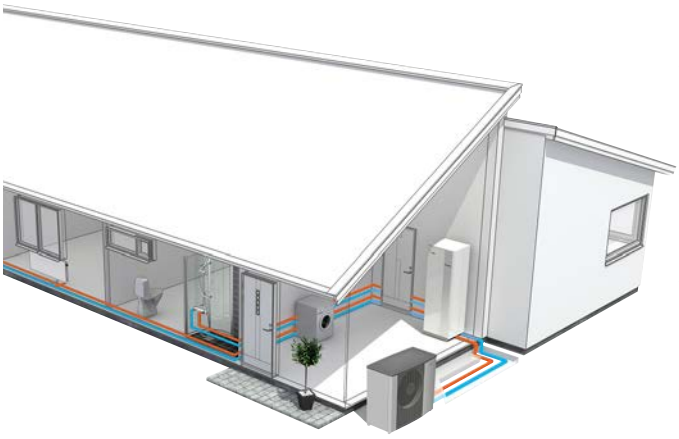
The NIBE VVM 310 has a smart, user-friendly control system which provides efficient heating/cooling and hot water with high performance. Installation of the NIBE VVM 310 is very simple since the water heater, electric additional heat and self-regulating circulation pumps are included.

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 maximum comfort, and you do nature a favour at the same time.

- Combine with a NIBE air/water heat pump for an integrated system.
- Smart, user-friendly control system.
- 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 a boiler volume with a domestic coil for hot water heating, immersion heater, circulation pumps, buffer vessel and control system. VVM 310 is directly adapted for connection and communication with the outdoor air heat pumps
NIBE SPLIT HBS 05 / F2040 / F2120 as well as a selection of heat pumps of older models (see Technical data), which together constitute a complete heating installation.

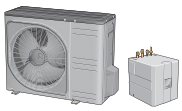
For optimum operation and savings, a low temperature heat distribution system is recommended. At the lowest dimensioned outdoor temperature (DOT), the highest recommended temperatures are 55 °C on the supply line and 45 °C on the return line, but VVM 310 can handle up to 70 °C. For correct dimensioning of the heat pump, NIBE's dimensioning program NIBE DIM is recommended.

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

OUTDOOR MODULES

Compatible Air/water heat pumps

NIBE SPLIT HBS 05



AMS 10-6	*HBS 05-6*
Part no. 064 205	Part no. 067 578
AMS 10-8	*HBS 05-12*
Part no. 064 033	Part no. 067 480
AMS 10-12	*HBS 05-12*
Part no. 064 110	Part no. 067 480
AMS 10-16	*HBS 05-16*
Part no. 064 035	Part no. 067 536

F2040

F2040-6	*F2040-8*
Part no. 064 206	Part no. 064 109
F2040-12	*F2040-16*
Part no. 064 092	Part no. 064 108

F2120

F2120-8 1x230V	*F2120-8 3x400V*
Part no. 064 134	Part no. 064 135
F2120-12 1x230V	*F2120-12 3x400V*
Part no. 064 136	Part no. 064 137
F2120-16 3x400V	*F2120-20 3x400V*
Part no. 064 139	Part no. 064 141

Check the software version of compatible older NIBE air/water heat pumps, see page 6.

Principle of operation

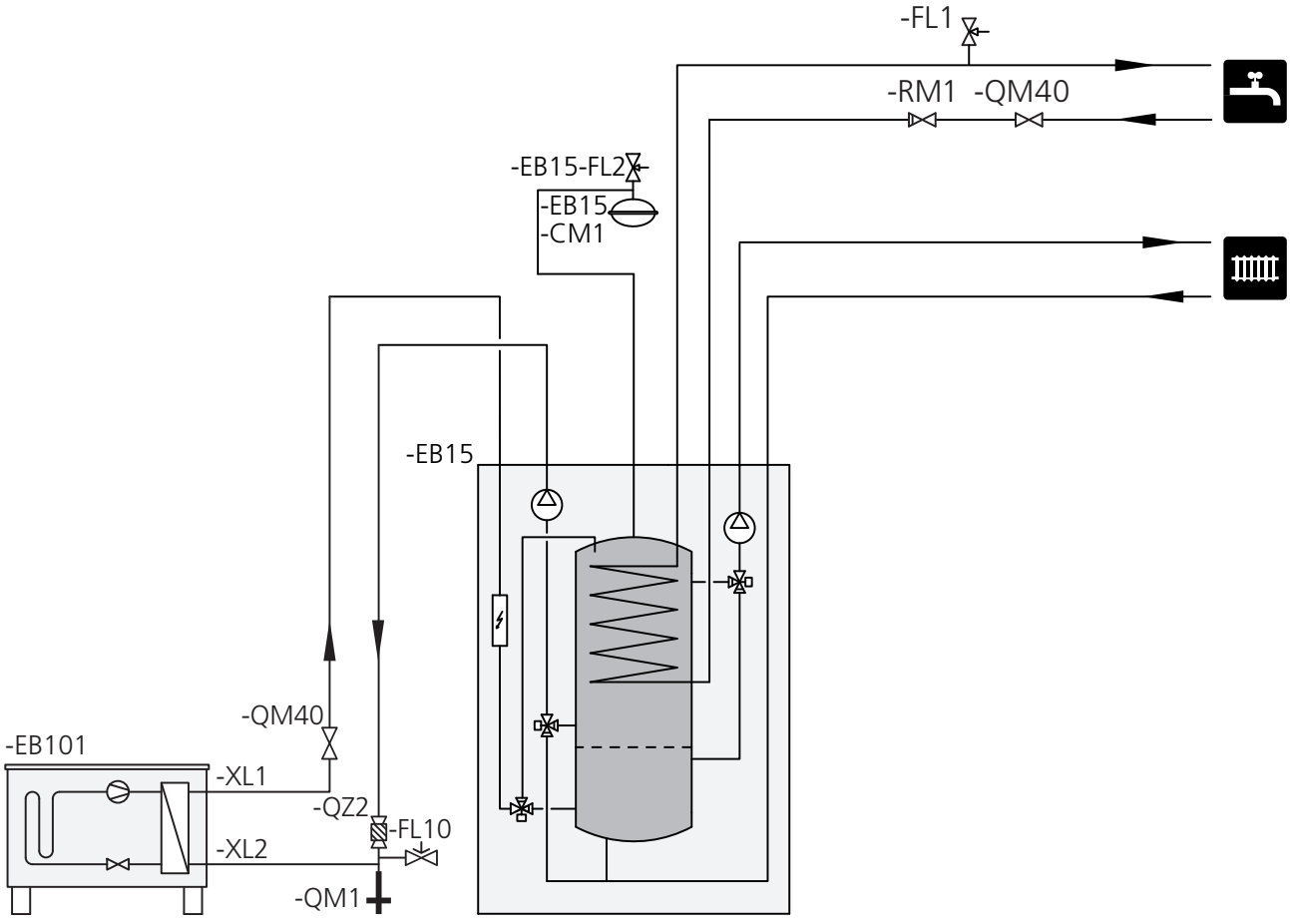
Principle of operation with hot water and a heating system. The heating medium side and the domestic hot water side must be fitted with the necessary safety equipment in accordance with the applicable regulations.

EXPLANATION

EB15 *Indoor module (VVM 310)*
CM1 Expansion vessel closed, heating medium
FL2 Safety valve, heating medium

EB101 *Heat pump*
FL10 Safety valve, heat pump
HQ1 Particle filter (included)
QM1 Tapping valve
QM40 Shut-off valve
QM41 Shut-off valve

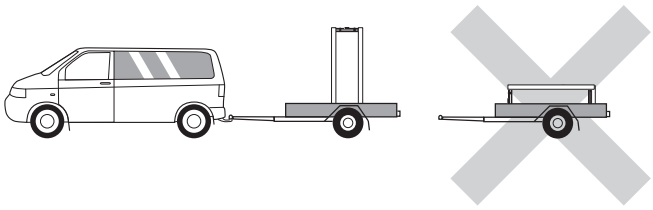
Miscellaneous
FL1 Safety valve, hot water
QM40 Shut-off valve
RM1 Non-return valve



Good to know about VVM 310

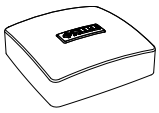
Transport and storage

VVM 310 should be transported and stored vertically in a dry place. However, the VVM 310 may be carefully laid on its back when being moved into a building.

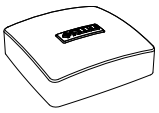


Supplied components

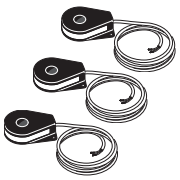
Local differences in the enclosed kit may occur. See relevant installer manual for more information.



Outside sensor



Room sensor



Current sensor

LOCATION

The kit of supplied items is placed on top of the product.

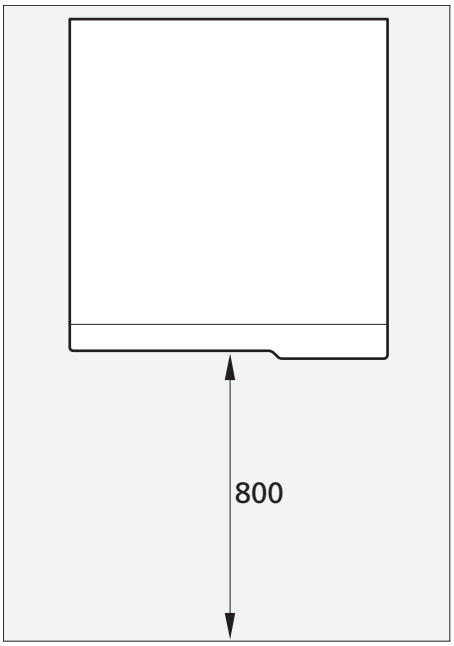
Installation and positioning

- Position VVM 310 on a firm base that can take the weight. Use the product's adjustable feet to obtain a horizontal and stable set-up.
- As water can exit the safety valve* for hot water, when connected to VVM 310, the space where VVM 310 is located must be provided with a floor drain.

*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 the indoor module and the wall behind for routing of cables and pipes.

Installation

Pipe installation

SIMPLE INSTALLATION

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

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.

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

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.

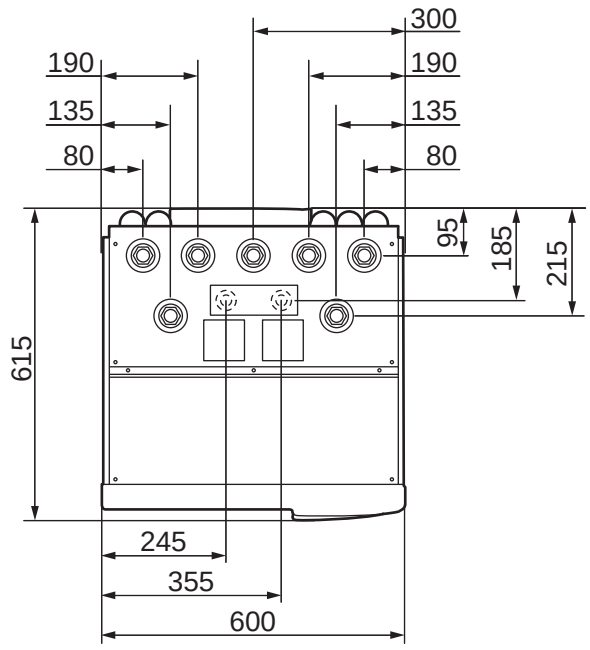
DESIGN

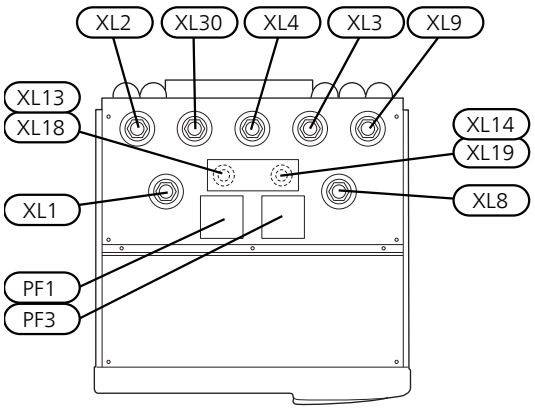
VVM 310 is fitted with intelligent control. This makes for easy operation while always enabling the indoor module to be used as efficiently as possible. The control also manages the automatic shunt and circulation pumps. Current temperatures and set values can easily be shown on the display.

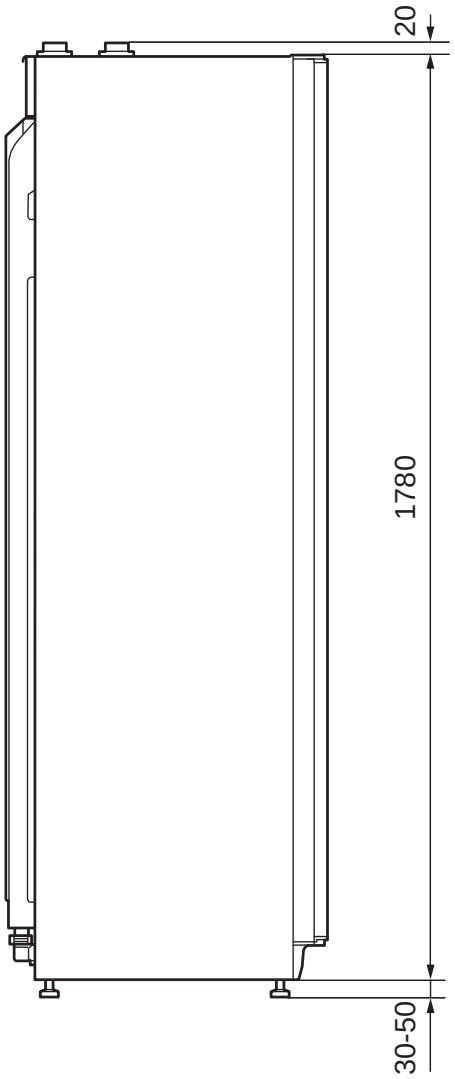
The insulation is made of moulded Neopor, which provides excellent heat insulation.

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

DIMENSIONS AND PIPE CONNECTIONS







Pipe connections

XL1	Connection, heating medium supply line G20 int.
XL2	Connection, heating medium return line G20 int.
XL3	Connection, cold water G20 int.
XL4	Connection, hot water G20 int.
XL8	Connection, docking from heat pump G20 int.
XL9	Connection, docking to heat pump G20 int.
XL13	Connection, solar heating system supply line Ø22 mm
XL14	Connection, solar heating system return line Ø22 mm
XL18	Connection, docking in high temp Ø22 mm
XL19	Connection, docking out high temp Ø22 mm
XL30	Connection, expansion tank G20 int.

DOCKING

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

See nibe.se/dockning for more detailed docking options.

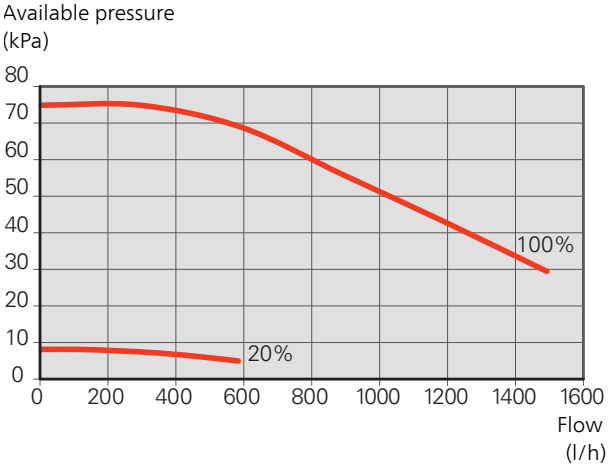
COMPATIBLE NIBE AIR/WATER HEAT PUMPS

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

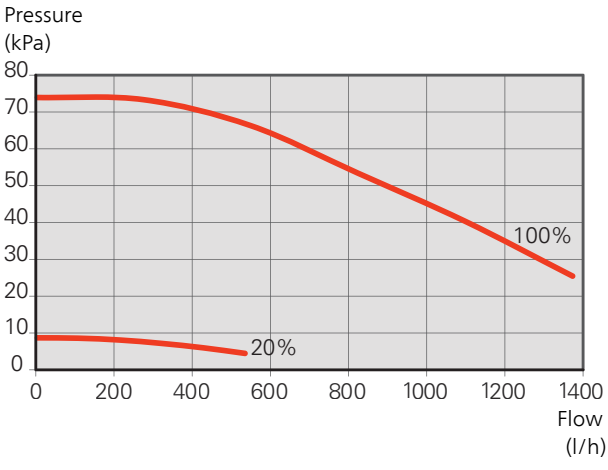
Product	*Software version*
F2020	118
F2025	55
F2026	55
F2030	all versions
F2040	all versions
F2120	all versions
NIBE SPLIT HBS 05: AMS 10-6 + HBS 05-6 AMS 10-8 + HBS 05-12 AMS 10-12 + HBS 05-12 AMS 10-16 + HBS 05-16	all versions

PUMP CAPACITY DIAGRAM

Available pressure circulation pump, GP1



Available pressure, charge pump, GP12



Electrical installation

ELECTRICAL CONNECTIONS

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.
- When cable routing in VVM 310, cable grommets UB1 and UB2 must be used. In UB1 and UB2, the cables are inserted through the indoor module from the back to the front. (See the Installer Manual.)

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.

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 (FQ1) 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.

Setting maximum output in the electric additional heat is done in menu 5.1.12.

Emergency mode

When the indoor module's switch (SF1) 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 something unusual occurs, messages about the malfunction appear in the display in the form of different alarm texts.

Functions

When connection to NIBE indoor module / control module (VVM / SMO) is ready, you can control your unit via the indoor module / control module.

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 warmer parts of the year. When it gets colder outside, the climate system must be started. The colder it is outside, the warmer radiators and under floor heating system must 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 setting selected. After adjustment, the correct amount of heat for the current outdoor temperature is supplied. The supply temperature of the heat pump will oscillate around the theoretically required 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 occasional higher hot water demand, there is a function called "temporary lux" that allows the temperature to be raised via one time increase or up to 12 hours (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

The indoor module (VVM), which is connected to VVM 310, can be used with the additional heat alone (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

The following is required in order for NIBE Uplink to function with the installation:

- Network cable (straight, at least Cat 5E UTP).
- Internet connection.
- Web browser that supports JavaScript.

For further presentation, 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 heat pump's consumption according to the time of day that electricity prices are lowest. This allows for savings, provided that the 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.

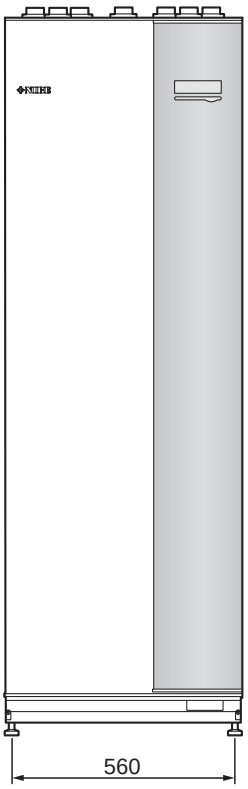
Remember that the “smart home” function requires NIBE Uplink in order to work.

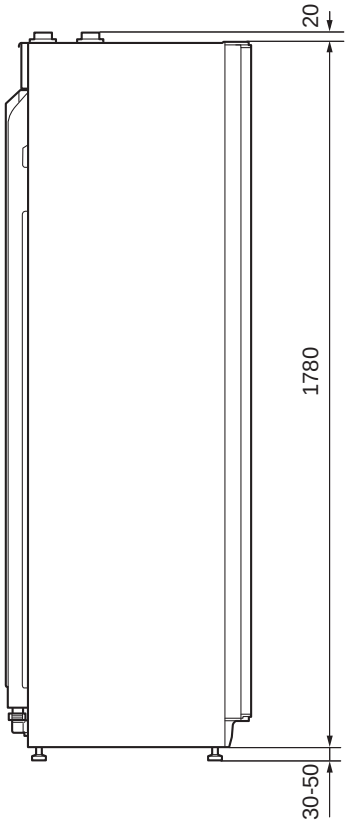
NIBE SMART ENERGY SOURCE™

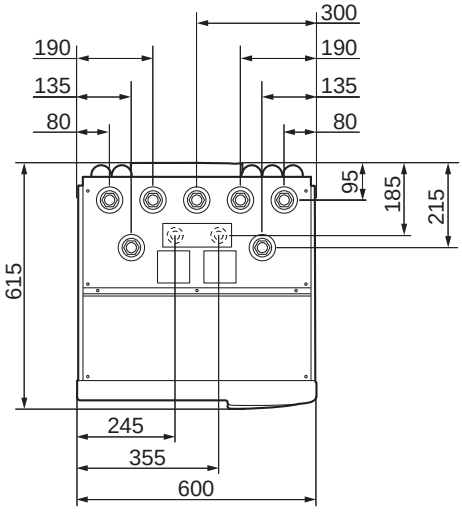
Smart Energy Source™ prioritises how / to what extent each docked energy source will be used. Here you can choose if the system is to use the energy source that is cheapest at the time. You can also choose if the system is to use the energy source that is most carbon neutral at the time.

Technical data

Dimensions and setting-out coordinates







Technical data CE

3X400V

3x400V		
Compatible NIBE air/water heat pumps		
F2040		6 / 8 / 12 / 16
F2120		8 / 12 / 16 / 20
NIBE SPLIT HBS 05 (AMS 10 + HBS 05)		6 / 8 / 12 / 16
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
Enclosure class		IP21
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 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.

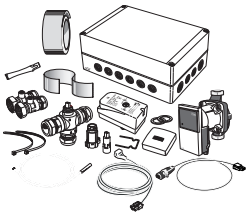
Accessories

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

Not all accessories are available on all markets.

Active cooling. ACS 310

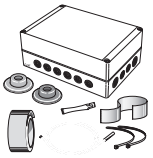
ACS 310 is an accessory that enables VVM 310 to control the production of cooling.



Control unit for external energy source

DEH 310 (oil/electricity/gas)

Part no. 067 249



Docking kit SCA 35

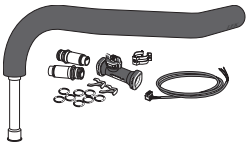
SCA 35 means that VVM 310 can be connected to thermal solar heating.

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.

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



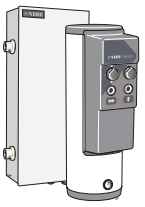
Exhaust air heat pump F135

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

External electric additional heat ELK

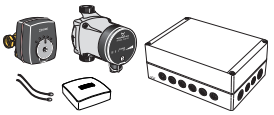
This accessory requires accessory DEH 310 (step controlled additional heat).

ELK 15	*ELK 213*
15 kW, 3 x 400 V	7-13 kW, 3 x 400 V



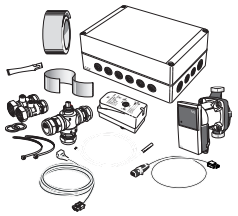
Extra shunt group ECS 40/ECS 41

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



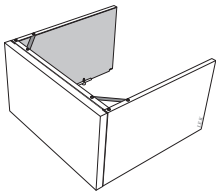
Pool heating POOL 310

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



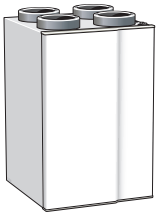
Top cabinet

Top cabinet that conceals any pipes.



Ventilation heat exchanger 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.



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PBD EN 1828-1 M12349