NIBE™ VVM 320
FLEXIBLE INDOOR MODULE

INTELLIGENT HOT WATER

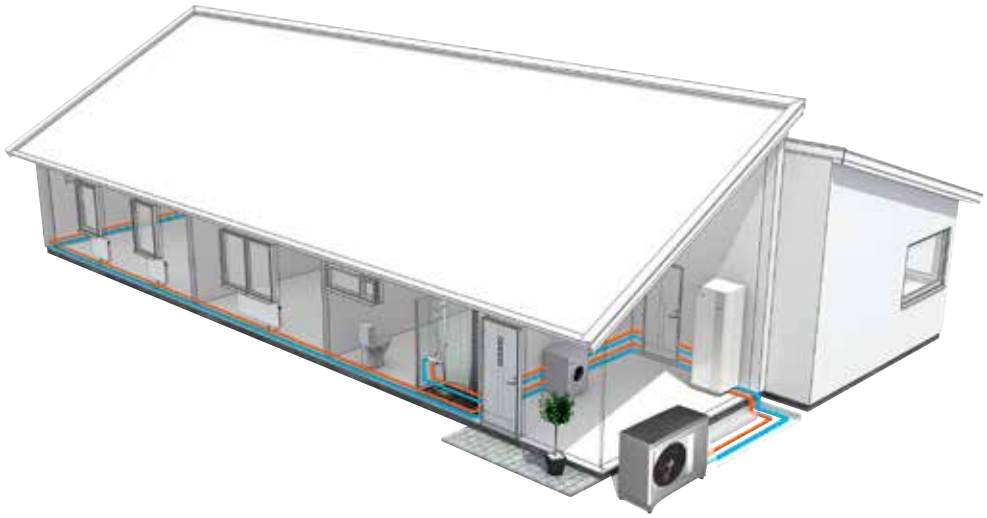
- Complete all-in-one indoor module for heating and hot water. Includes filler valve, safety valve, expansion vessel, manometer, circulation pumps and buffer tank.
- For upgrading existing heating systems or new builds with requirements for high hot water performance.
- Swedish National Board of Housing, Building and Planning's Building Regulations adapted controls.
- NIBE's air/water heat pumps together with VVM 320 make up a complete installation for heating and hot water.
- A new generation control module with a colour display and several new functions.
- NIBE Uplink™
- Integrated buffer tank for the heating system.
- A-class design, speed controlled system pump.
- A-class design circulation pump, active during hot water charging.
- Load monitor as standard.

NIBE VVM 320

VVM 320 is an indoor module, which, together with the NIBE's air/water outdoor modules, creates a complete system to supply the building's heating and hot water requirements. VVM 320 can be docked to NIBE's new generation of outdoor air heat pumps, F2030, F2040-8 and F2040-12.

HOW THE NIBE™ VVM 320 WORKS

System diagram



VVM 320 consists of water heater with charge coil, expansion vessel, safety valve, filler valve, immersion heater, circulation pumps, buffer vessel and control system. VVM 320 is designed for connection and communication with F2030/F2040, which together make up a complete heating installation.

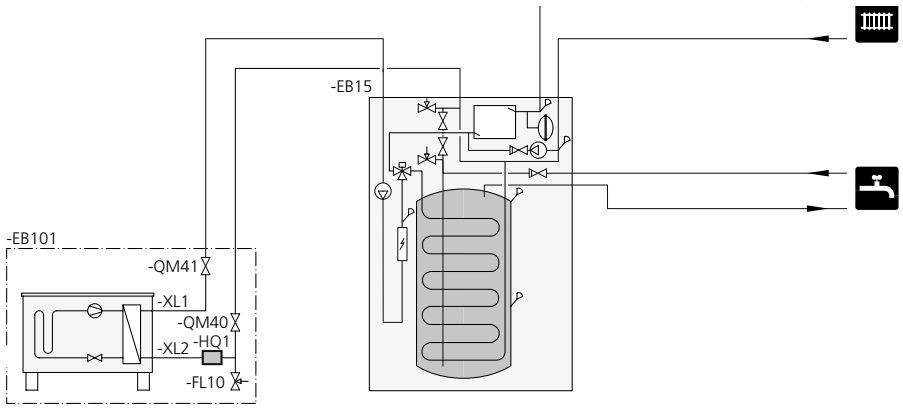
F2030/F2040 covers most of the heating and hot water requirement down to the heat pump stop temperature. If the outdoor temperature drops to a level below the stop temperature of the heat pump, all heating then occurs using VVM 320.

The system requires a low-temperature design of the radiator circuit. At 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 320 can handle up to 65 °C. NIBE's dimensioning program VPDIM is recommended for correct dimensioning of the building's heating output requirements and climate.

Hot water capacity is dependent on selected outdoor module and whether addition is permitted. When selecting F2040, hot water comfort "Normal" is obtained, with F2030 hot water comfort "Lux" is obtained without addition. This gives excellent hot water comfort.

A system with VVM 320 and NIBE's compatible outdoor air heat pumps means a complete energy saving installation. VVM 320 can be supplemented with several different accessories.

Basic docking with hot water and a heating system



GOOD TO KNOW ABOUT NIBE™ VVM 320

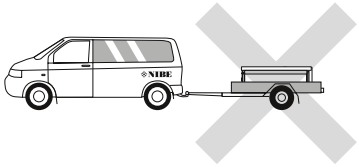
Quick and simple installation

- No extra buffer tank for the heating system is required, because VVM 320 has full control of the heat pump and the heating system.
- New control with colour display and USB port.
- Installation help with step by step guide through the start-up process.
- Automatic setting of flow across heat pump and heating system.
- Factory installed components for best operational reliability and safe installation.

Transport and storage

VVM 320 must be transported and stored upright and dry.

The VVM 320 may, however, be carefully laid on its back when being moved into a building.



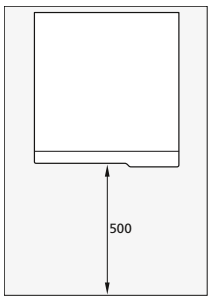
Assembly

Position VVM 320 on a firm base that can bear its weight, preferably on a concrete floor or foundation. Use the product's adjustable feet to obtain a horizontal and stable set-up.

The area where VVM 320 is located must be equipped with floor drainage.

Installation area

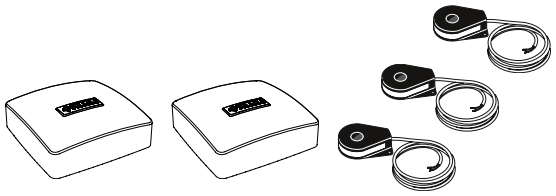
Leave a space of 500 mm in front of the product. All service on VVM 320 can be carried out from the front.



NOTE! Leave 10 - 25 mm free space between the indoor module and the wall behind for routing of cables and pipes.

Supplied components

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



Outdoor sensor Room sensor Current sensor

GOOD TO KNOW ABOUT NIBE™ VVM 320

Maintenance

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.

Installation

VVM 320 is easy to install. All pipe connections are easily accessible. This is especially useful for the replacement market.

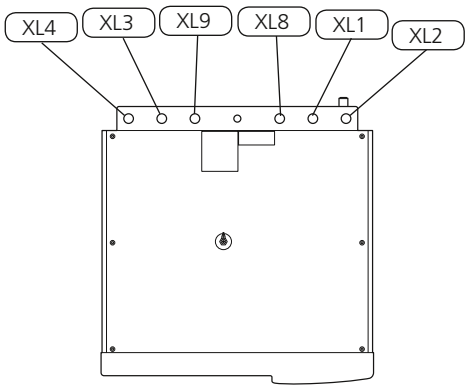
Equipment

VVM 320 is equipped with filler and drain valves. In addition, VVM 320 is equipped with integrated buffer vessel and expansion vessel, as well as necessary safety valves.

Design

VVM 320 is equipped with an intelligent control. This makes for easy operation at the same time as always enabling the indoor module to run as efficiently as possible. System pump and circulation pump are controlled for optimal operation. Current temperatures and set values can be shown on the display. The insulation is polyurethane, which provides excellent heat insulation. The outer casing is of white powder-coated steel plate.

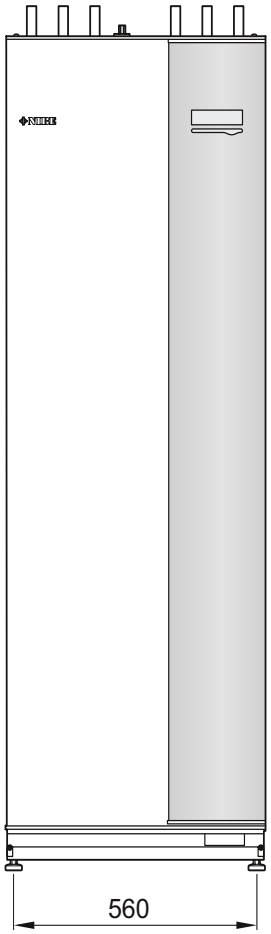
Pipe dimensions

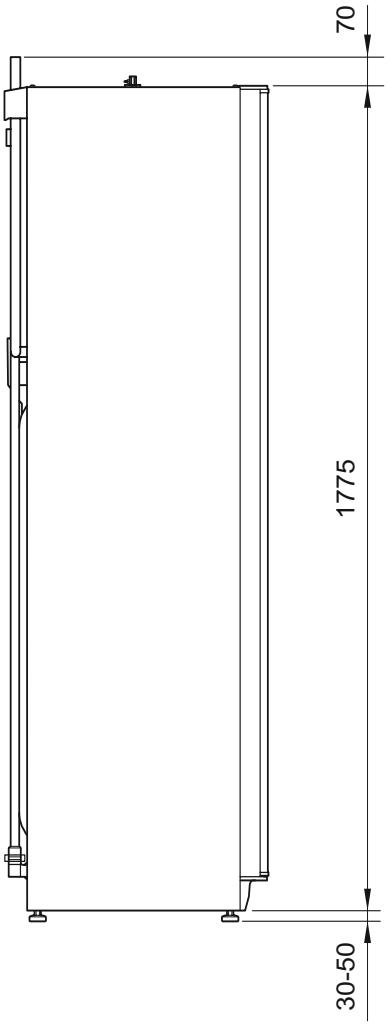


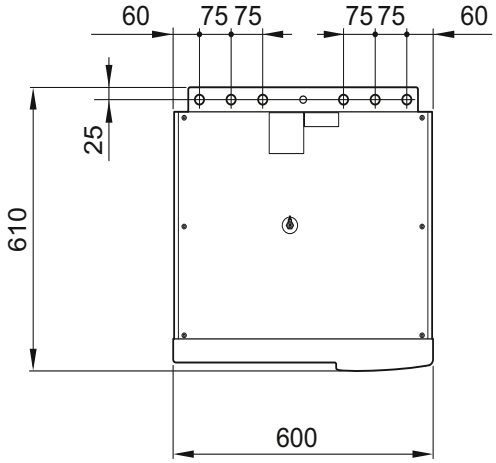
Connection	
XL1 Connection, heating medium, supply line	Ø 22 mm
XL2 Connection, heating medium, return line	Ø 22 mm
XL3 Connection cold water	Ø 22 mm
XL4 Connection, hot water	Ø 22 mm
XL8 Connection, docking in heating medium	Ø 22 mm
XL9 Connection, docking out heating medium	Ø 22 mm

GOOD TO KNOW ABOUT NIBE™ VVM 320

Dimensions



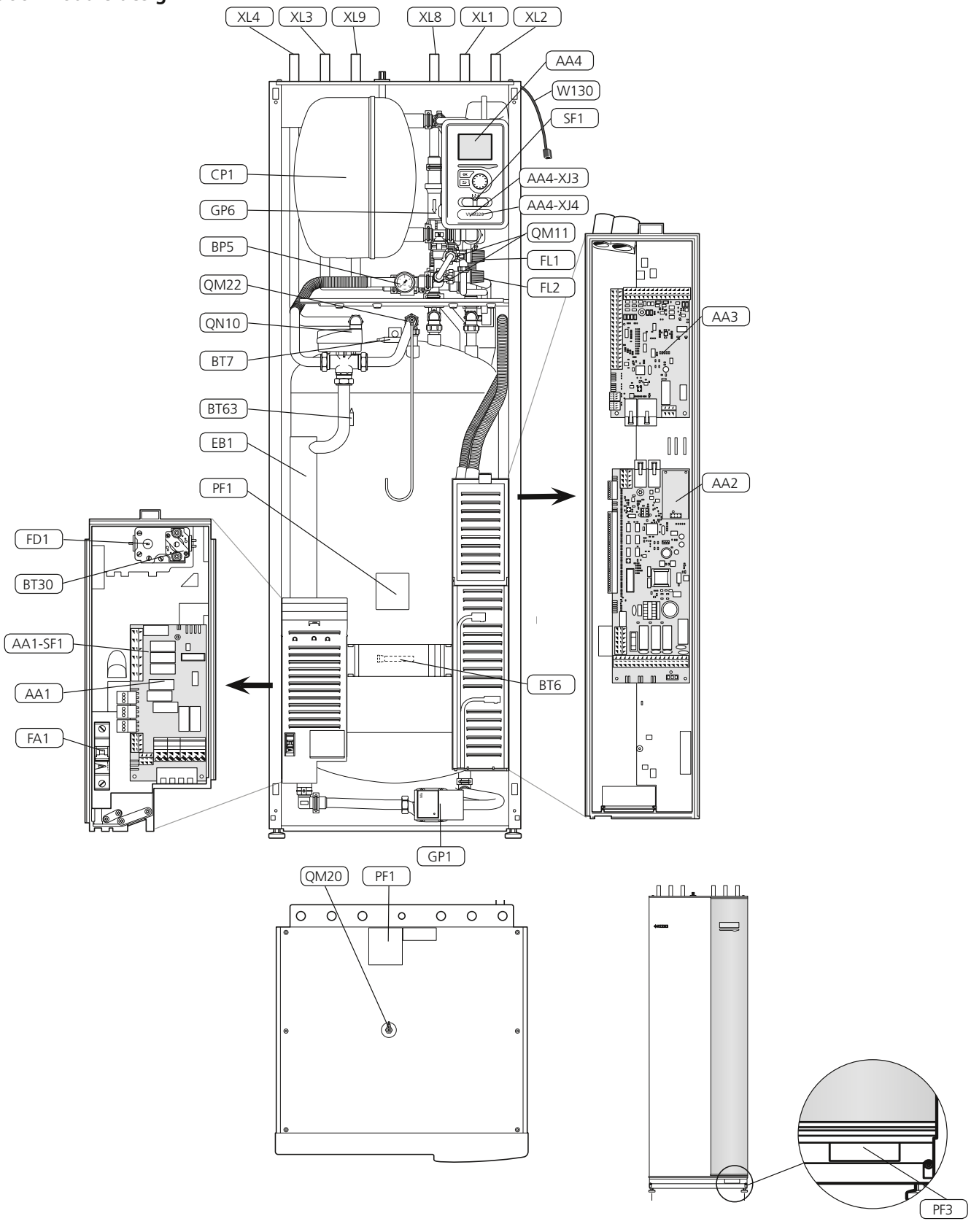




We reserve the right to make changes in design and dimensions without prior notice.

GOOD TO KNOW ABOUT NIBE™ VVM 320

Indoor module design

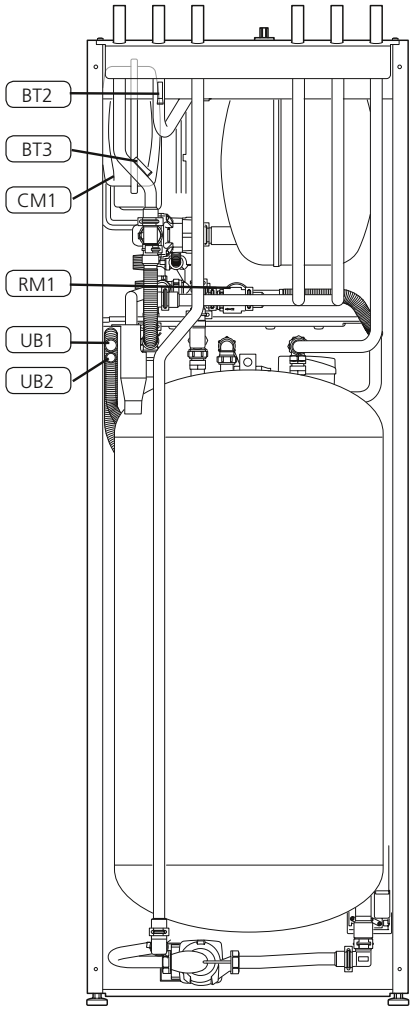


Frontsida

List of components

Pipe connections

XL1	Connection, heating medium supply line Ø22 mm
XL2	Connection, heating medium return line Ø22 mm
XL3	Connection, cold water Ø22 mm
XL4	Connection, hot water Ø22 mm
XL8	Connection, docking in heating medium Ø22 mm
XL9	Connection, docking out heating medium Ø22 mm



Baksida

HVAC components

CM1	Expansion vessel, closed, heating medium
CP1	Buffer vessel (UKV)
FL1	Safety valve, hot water heater
FL2	Safety valve, climate system
GP1	Circulation pump
GP6	Circulation pump, heating medium 2
QM11	Filler valve, heating medium
QM20	Venting, climate system
QM22	Venting valve, coil
QN10	Reversing valve, climate system/water heating, supply line
RM1	Check valve, cold water

Sensors etc.

BP5	Manometer, heating system
BT2	Temperature sensor, heating medium supply
BT3	Temperature sensor, heating medium return
BT6	Temperature sensor, hot water, charging
BT7	Temperature sensor, hot water, top
BT30	Thermostat, standby mode
BT63	Temperature sensor, heating medium supply after immersion heater

Electrical components

AA1	Immersion heater card
AA1-SF1	Switch
AA2	Base card
AA3	Input circuit board
AA4	Display unit
AA4-XJ3	USB port
AA4-XJ4	Service socket
BF1*	Energy meter
EB1	Immersion heater
FA1	Miniature circuit-breaker
FD1	Temperature limiter
SF1	Switch
W130	Network cable for NIBE Uplink™

Other information

PF1	Rating plate
PF3	Serial number plate
UB1	Cable grommet
UB2	Cable grommet

Designations in component locations according to standard IEC 81346-1 and 81346-2

Explanation

CL11 Pool kit
AA5 Accessory card
BT51 Temperature sensor, pool
EP5 Exchanger, pool
GP9 Pump, pool
GP12 Circulation pump
HQ4 Particle filter
QN19 Reversing valve, pool

EB15 VVM 310
XL1 Connection, heating medium, supply 1
XL2 Connection, heating medium, return 1
XL3 Connection, cold water
XL4 Connection, hot water
XL5 Hot water circulation (HWC)
XL8 Connection, docking, in heating medium
XL9 Connection, docking, out heating medium

EB101 Heat pump
FL10 Safety valve
HQ1 Particle filter
QM1 Drain valve
QM40 Shut-off valve
QM41 Shut-off valve

EM1 Wood burning stove with back boiler
AA5 Accessory card
BT52 Temperature sensor, boiler
EM1 Wood burning stove with back boiler
GP15 Charge pump, external heat source

EP21 Climate system 2
AA5 Accessory card
BT2 Temperature sensor, heating medium, supply
BT3 Temperature sensor, heating medium, return
GP20 Circulation pump, heating medium, lower shunt
QN11 Shunt valve, addition

Other information
CM1 Expansion vessel closed, heating medium
EB1 Electric heater
FL1 Safety valve, hot water
FL2 Safety valve, heating medium
QM40 Shut-off valve
RM1 Non-return valve

Installation alternative

Compatible NIBE air/water heat pumps

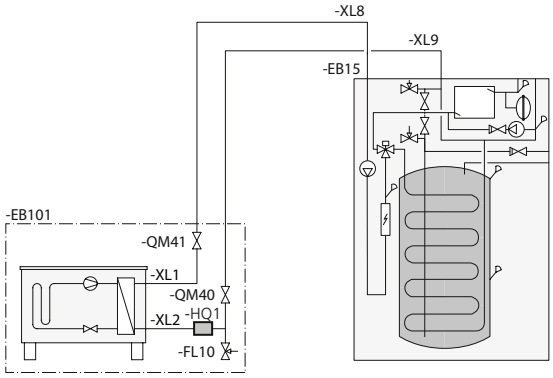
Compatible NIBE air/water heat pumps must be equipped with a control card that has at least the software version given in the following list. The control card version is displayed in the indoor module.

Product	Software version
F2040-8	all versions
F2040-12	all versions
F2040-16	all versions

VVM 320 can be connected to extra water heater. See the last page for the list of the accessories that can be used with VVM 320.

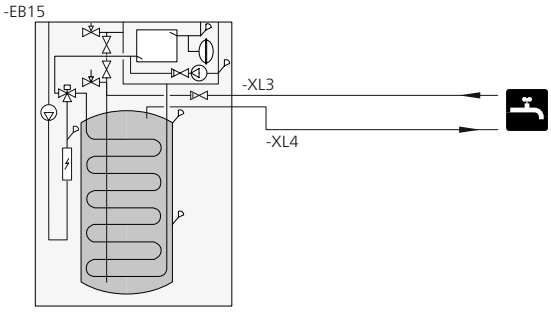
Connecting to heat pump

All outdoor pipes must be thermally insulated with at least 20 mm thick pipe insulation. VVM 320 is not equipped with shut off valves; these must be installed outside the indoor module to facilitate any future servicing.



Connecting cold and hot water

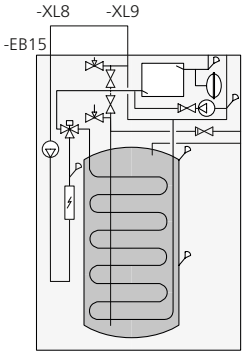
The mixing valve must be installed if the factory setting is changed so that the temperature can exceed 60 °C. If the factory setting is changed, national regulations must be observed. The setting is made in menu 5.1.1.



INSTALLATION

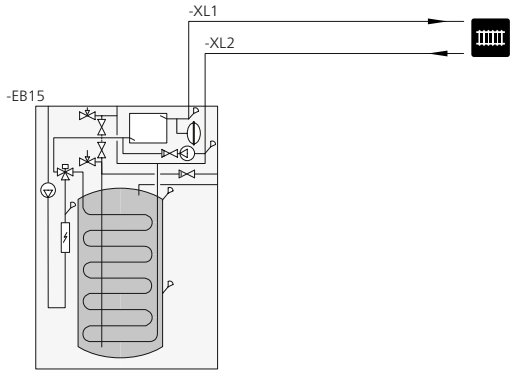
Connection as electric boiler

Connect the pipe for docking in from the heat pump (XL8) to the pipe out to the heat pump (XL9).



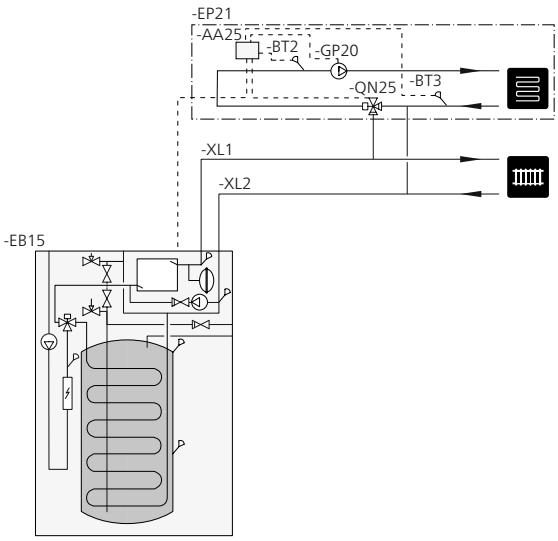
Connecting the climate system

When connecting to a system with thermostats on all radiators/ underfloor heating coils, a relief valve must be fitted, or a thermostat must be removed to ensure sufficient flow.



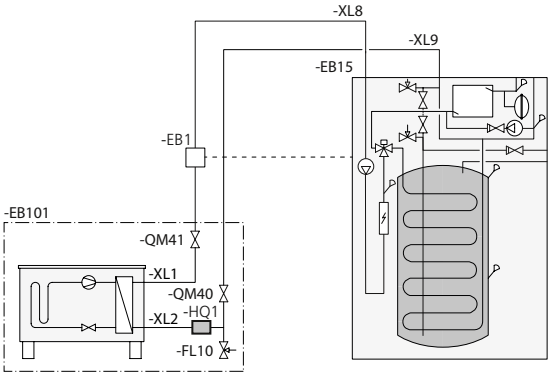
Two or more climate systems

When more than one climate system is to be heated, the following connection can be used. For this connection accessory ECS 40/ECS 41 is required.



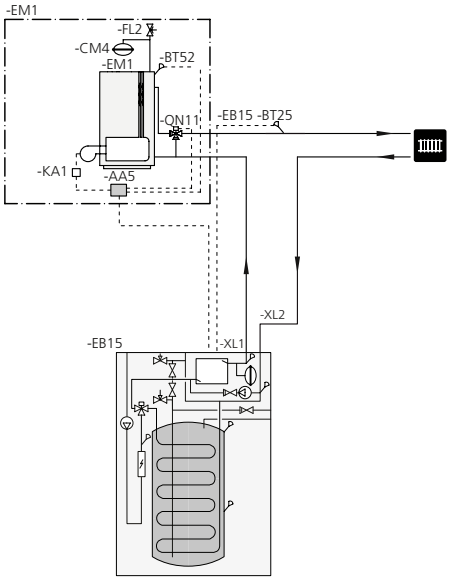
Connecting ELK

For connection of external electrical addition, in one step, in event of a stoppage because of cold outdoor air.



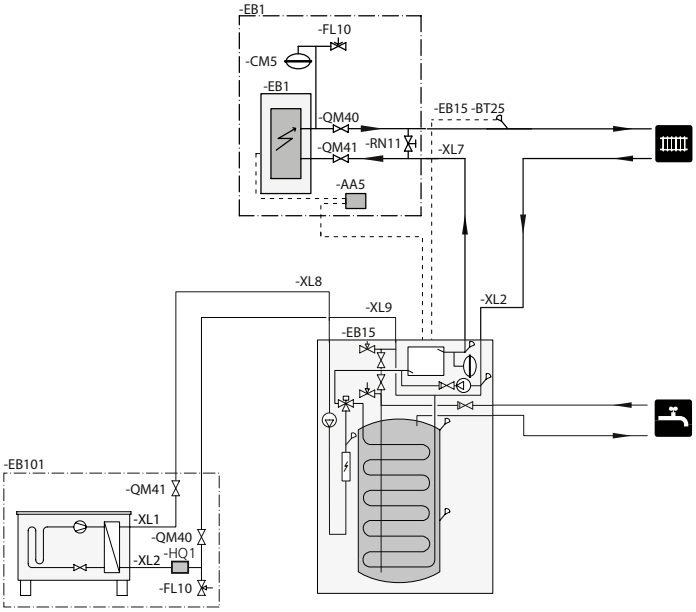
Connection of external shunt controlled heat source

For connection to gas/ oil boiler the accessory is required AXC 40.



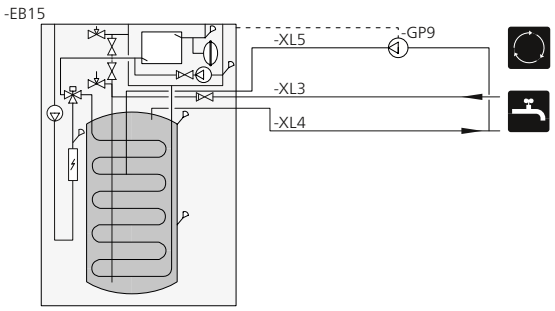
Connection of step controlled additional heat with AXC 40

For connection of step controlled additional heat, accessory AXC 40 is required.



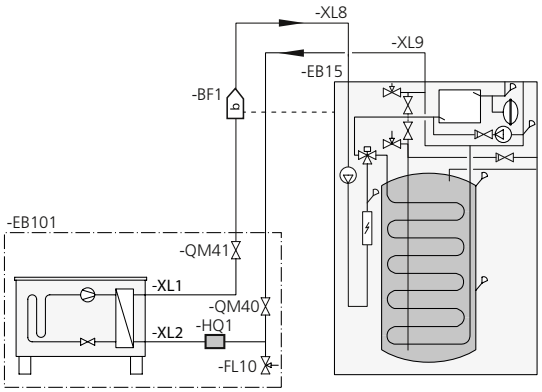
Connecting hot water circulation

To reduce the risk of bacterial growth in systems with hot water circulation, the temperature of the circulating water should not fall below 50°C. There should not be any non-circulatory hot water pipes. Adjust the hot water system so that the temperature does not fall below 50 °C at the ends of the system.



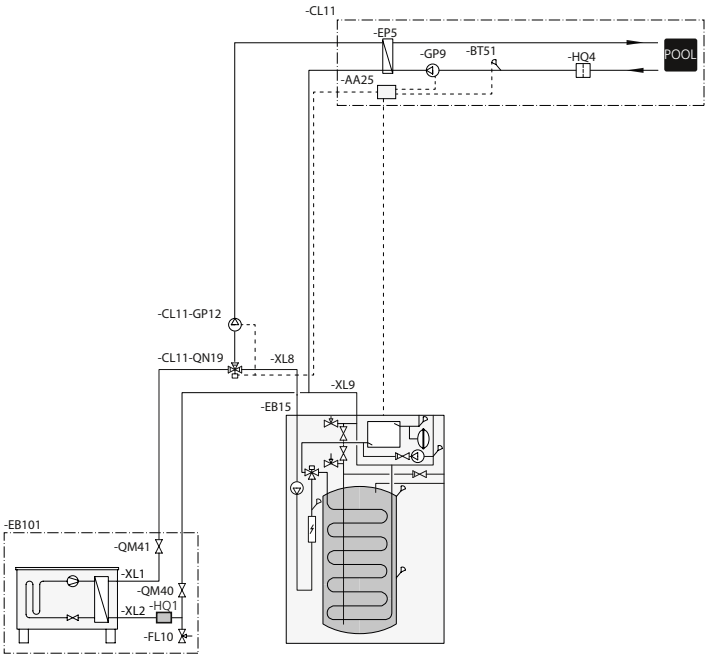
Connecting EMK 300

Connection of energy measurement kit EMK 300 (BF1) to VVM 320.



Connecting pool

Charging of the pool is controlled by the pool sensor. In the case of low pool temperatures, the reversing valve reverses direction and opens towards the pool exchanger. Accessory POOL 310 is required for this connection.



INSTALLATION

Electrical connections

General

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

• Disconnect the indoor module before insulation testing the house wiring.

• When the building is equipped with an earth-fault breaker, VVM 320 should be equipped with a separate one.

• The electrical circuit diagram for the indoor module is at the end of this Installer manual.

• 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 50m, for example EKKX, LiYY or equivalent.

• When cable routing in VVM 320 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.

Miniature circuit-breaker

The indoor module and a large proportion of its internal components are internally fused by a miniature circuit breaker (FA1).

Temperature limiter

The temperature limiter (FD1) cuts the current supply to the electrical addition if the temperature rises to between 90 and 100 °C and is manually reset.

Settings

Electrical addition - maximum output

The immersion heater can be set up to a maximum of 9 kW. The immersion heater output is divided into 7 steps, according to the table in the Installer manual. Setting maximum output in the electrical addition is done in menu 5.1.12.

Standby mode

When the indoor module switch (SF1) is set to emergency mode only the most necessary functions are activated.

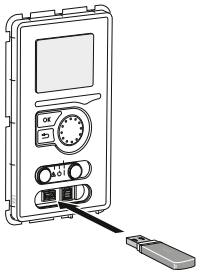
• The hot water capacity is reduced.

• The load monitor is not connected.

• Fixed temperature in the supply line.

USB service outlet

VVM 320 is equipped with a USB socket in the display unit. This USB socket can be used to connect a USB memory stick to update the software, save logged information and handle the settings in VVM 320.



SMS 40

VVM 320 can be controlled and monitored externally with accessory SMS 40.

SMS 40 consists of a communications module, a GSM modem with an antenna and a separate power supply unit with jack for plugging into a wall socket. The antenna can be placed outside the enclosure. SMS 40 enables operation to be controlled and monitored, via a GSM module, using a mobile phone via SMS messages. For the GSM function to work, the communications module must be equipped with a valid GSM subscription. This may, for example, be a pay as you go card or a special telematics subscription. For further presentation, visit www.nibe.eu

NIBE Uplink™

Using the Internet and NIBE UplinkTM you can get a quick overview and the present status of the installation the heating in your home. You get a good overall view where you can follow and control the heating and hot water comfort. If your system is affected by an operational disturbance, you receive an alert via e-mail that allows you to react quickly. NIBE UplinkTM also gives you the opportunity to easily control the comfort in the home, no matter where you are.

Range of services

Via NIBE UplinkTM you have access to different levels of service. 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).

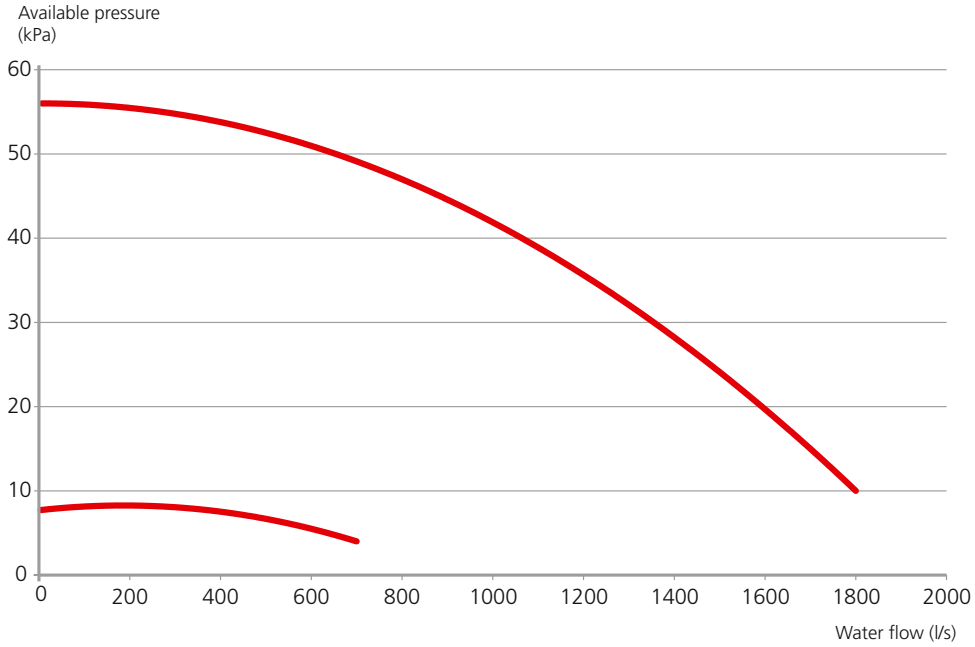
Installation and associated equipment requirements

The following is required in order for NIBE UplinkTM to work with the installation:

- Network cable Cat.5e UTP (straight, male-male), wired network communication.
- Internet connection (broadband).
- The web browser that supports JavaScript. If Internet Explorer is used, it must be version 7 or higher. See the help file in the web browser for information about how to activate JavaScript.

Pump capacity diagram

Available pressure, circulation pump for heating systems, GP1



THE DISPLAY

A large, easy to read multicoulour display gives everyone the chance to maximize the energy saving potential of this exciting green technology!

Display unit

Display, A

Instructions, settings and operational information are shown on the display. The easy-to-read display and menu system facilitates navigation between the different menus and options to set the comfort or obtain the information you require.

Status lamp, B

The status lamp indicates the status of the heat pump. It:

- lights green during normal operation.
- lights yellow in emergency mode.
- lights red in the event of a deployed alarm.

OK button, C

The OK button is used to:

- confirm selections of sub menus/options/set values/page in the start guide.

Back button, D

The back button is used to:

- go back to the previous menu.
- change a setting that has not been confirmed.

Control knob, E

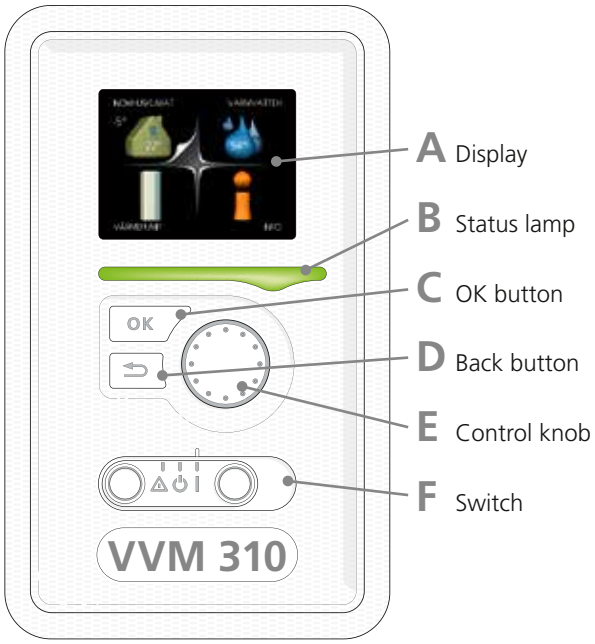
The control knob can be turned to the right or left. You can:

- scroll in menus and between options.
- increase and decrease the values.
- change page in multiple page instructions (for example help text and service info).

Switch, F

The switch assumes three positions:

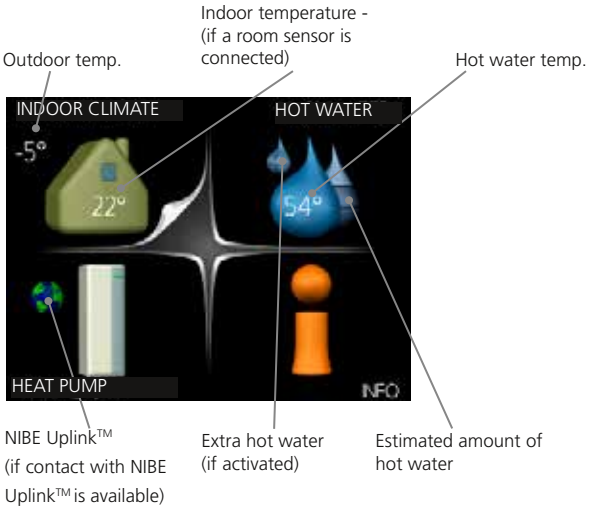
- On (I)
- Standby (⏻)
- Emergency mode (⚠)



THE DISPLAY

Menu system

When the door to the heat pump is opened, the menu system's four main menus are shown in the display as well as certain basic information.



Menu 1 – Indoor climate

Setting and scheduling the indoor climate.

Menu 2 – Hot water

Setting and scheduling hot water production.

This menu only appears if a water heater is docked to the heat pump.

Menu 3 - Info

Display of temperature and other operating information and access to the alarm log.

Menu 4 – Heat pump

Setting time, date, language, display, operating mode etc.

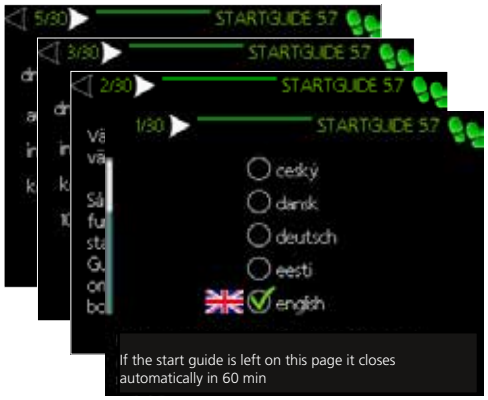
Menu 5 - Service

Advanced settings. These settings are not available to the user. The menu is visible by pressing the Back button for 7 seconds.

Start guide

The first time the heat pump is started a start guide is started. The start guide instructions state what needs to carried out at the first start together with a run through of the heat pump's basic settings.

The start guide ensures that the start-up is carried out correctly and cannot be bypassed. The start guide can be started later in menu 5.7.



TECHNICAL SPECIFICATIONS

CE IP21

3x400V		
Compatible external parts[1)]		F2030-7 / F2030-9 F2040-8 / F2040-12
Additional power	kW	9
Electrical data		
Rated voltage		400V 3NAC 50 Hz
Max operating current	A	16
Fuse	A	16
Power, GP1	W	10 - 110
Power, GP6	W	10 - 22
IP class		IP 21
Heating medium circuit		
Energy class, GP1		low energy
Energy class, GP6		low energy
Max system pressure heating medium	MPa	0.25 (2.5 bar)
Min flow	litres/h	400
Max HM temp	°C	70
Pipe connections		
Heating medium, CU pipe	mm	Ø22
Hot water connection	mm	Ø22
Cold water connection	mm	Ø22
Heat pump connections	mm	Ø22

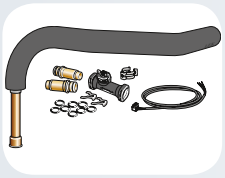
Other information		
Indoor module		
Volume, hot water heater	litre	180
Volume, total indoor module	litre	206
Volume buffer vessel	litre	26
Cut-off pressure, hot water heater	MPa	0.9 (9 bar)
Max permitted pressure in indoor module	MPa	0.25 (2.5 bar)
Capacity hot water heating According to EN 255-3		
Tap volume 40°C at Eco comfort	litre	220
Tap volume 40°C at Normal comfort	litre	250
Tap volume 40°C at Luxury comfort	litre	280
Idle loss according to DIN 4753-8	W	98
Dimensions and weight		
Width	mm	600
Depth	mm	615
Height (without base)	mm	1800
Height (with base)	mm	1830 – 1850
Required ceiling height	mm	1910
Weight (excl. packaging and without water)	kg	146

1) Applies to outdoor air heat pump at 7/45 °C (outdoor temperature / Supply temperature)

ACCESSORIES

Active cooling ACS 310

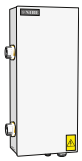
Part no. 067 248



Energy measurement kit EMK 310

This accessory is used to measure the amount of energy VVM 320 produces and supplies for hot water and heating in the building.

Part no. 067 246

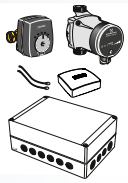


External electrical addition ELK

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

ELK 15

Part no. 069 022



Extra shunt group ECS 40/ECS 41

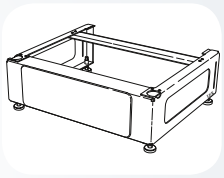
This accessory is used when VVM 320 is installed in houses with two or more different climate systems that require different supply temperatures.

ECS 40 (max 80 m2)

Part no. 067 287

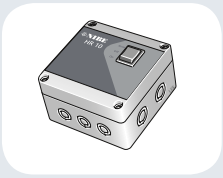
ECS 41 (min 80 m2)

Part no. 067 288



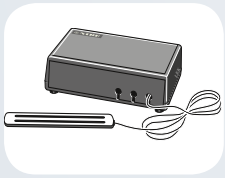
Base extension EF 45

Part no. 067 152



Auxiliary relay HR 10

Part no. 067 309



Communication module SMS 40

SMS 40 enables VVM 320 to be controlled and monitored via SMS messages. The mobile application "NIBE Mobile App" can be used with a mobile telephone with the Android operating system.

Part no. 067 073

Pool heating POOL 310

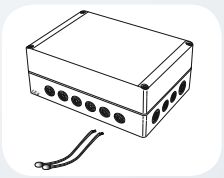
POOL 310 is an accessory that enables pool heating with VVM 320.

Part no. 067 247

Room unit RMU 40

RMU 40 means that control and monitoring of the indoor module can be carried out in a different part of the accommodation to where VVM 320 is located.

Part no. 067 064



Accessory card AXC 40

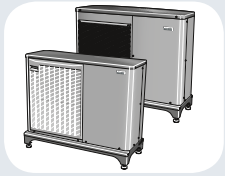
An accessory card is required if step controlled addition (e.g. external electric boiler), shunt controlled addition (e.g. wood/oil/gas/pellet boiler) or hot water comfort is to be connected to VVM 320. An accessory card is also required if for example a HWC pump is connected to VVM 320 at the same time that the buzzer alarm indication is activated.

Part no. 067 060

Heat pump F2030

7 kW Part no. 064 099

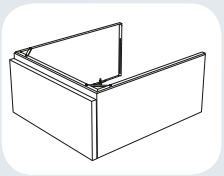
9 kW Part no. 064 070



Heat pump F2040

8 kW Part no. 064 109

12 kW Part no. 064 092



Top cabinet

2050 mm

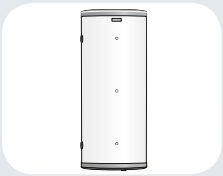
Part no. 089 756

2150 mm

Part no. 089 757

2200-2450 mm

Part no. 089 758



Buffer vessel UKV

UKV 200 Cooling accumulator

Part no. 080 321

UKV 300 Cooling accumulator

Part no. 080 330

639586 Technical PBD GB NIBE VVM 320 1433-1

NIBE is ISO-certified:
SS-EN ISO 9001:2000
SS-EN ISO 14001:2004

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