Indoor module
NIBE VVM S500

The NIBE VVM S500 is designed to be combined with one NIBE air/water heat pump to create a highly efficient, flexible climate system for larger houses and properties.

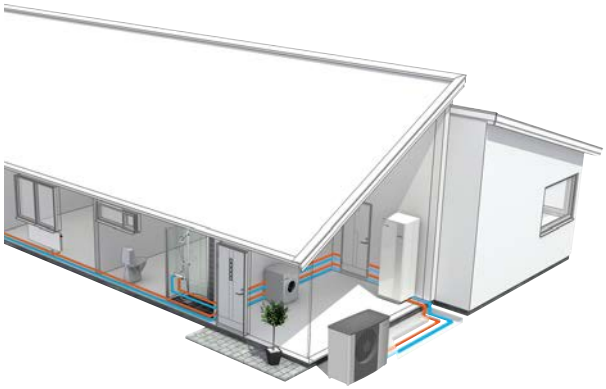
The NIBE VVM S500 has a smart, user-friendly control system that provides high-performance, efficient heating and hot water. Together with one NIBE air/water heat pump form a complete solution for simple installation and high comfort.

With integrated Wi-Fi and the possibility of connecting to wireless accessories, the NIBE S-Series will become a natural part of your connected home. The smart technology adjusts the indoor climate automatically while you enjoy complete control via your smartphone or tablet. A high level of comfort and low energy consumption – and you're doing nature a favour at the same time.

- **Complete climate system with NIBE air/water heat pump for detached houses, terraced houses and larger properties.**
- **Flexible system with large hot water capacity.**
- **User-friendly touchscreen, wireless accessories and integrated wireless connectivity with energy-saving smart technology for a high level of comfort.**

This is how NIBE VVM S500 works

Installation method



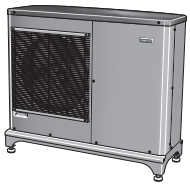
VVM S500, together with a NIBE air/water heat pump, forms a complete system, with compressor, immersion heater and components for hot water heating.

Energy is recovered from the outdoor air using the air/water heat pump and supplied to VVM S500, which significantly reduces the energy costs. The system supplies heating, cooling and hot water. Heating up to 70 °C and cooling down to 17 °C is possible.

For optimum operation and savings, a low temperature heat distribution system is recommended.

COMPATIBLE OUTDOOR MODULES

F2050



F2050-6
Part no. 064 328

F2050-10
Part no. 064 318

F2050-12
Part no. 064 361

F2050-16
Part no. 064 362

S2125

S2125-8 1x230 V
Part no. 064 220

S2125-8 3x400 V
Part no. 064 219

S2125-12 1x230 V
Part no. 064 218

S2125-12 3x400 V
Part no. 064 217

S2125-16 3x400 V
Part no. 064 215

S2125-20 3x400 V
Part no. 064 213

Design

Control of VVM S500 is designed to ensure easy operation while always enabling the air/water heat pump to run as efficiently as possible. VVM S500 automatically determines the best operation mode. The display shows the current temperatures and set values in plain text.

VVM S500 gives great savings thanks to the outdoor unit's powerful, speed-controlled compressor, which, together with the indoor module's intelligent control, works with the currently most beneficial temperature conditions.

The outer casing is made of white, powder-coated, steel plate. The front panel is simple to remove, providing easy access when installing and servicing. The insulation is made of moulded Neopor, which provides excellent heat insulation.

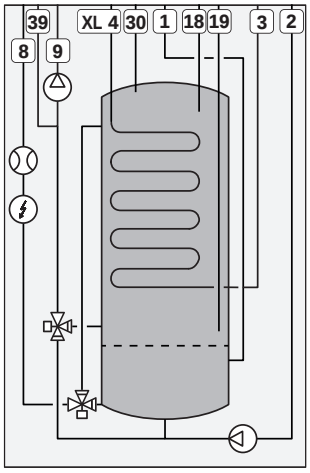
The internal immersion heater's power is easy to adjust via the display and VVM S500 can be blocked.

Principle of operation

VVM S500 consists of a coil for hot water, an immersion heater, circulation pumps, a buffer vessel and a control system.

VVM S500 is intended for connection and communication with compatible NIBE outdoor unit, and together they constitute a complete heating installation.

When it is cold outdoors, the outdoor unit works with the indoor module, and if the outdoor air temperature falls below the outdoor unit's working range, all heating is performed by the immersion heater.



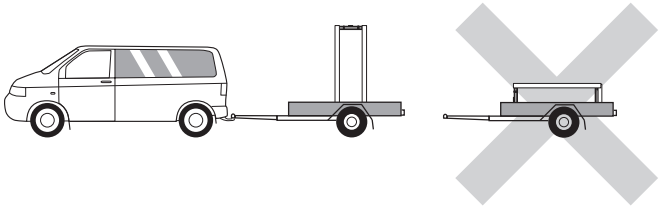
XL1	Connection, heating medium flow line
XL2	Connection, heating medium return line
XL3	Connection, cold water
XL4	Connection, hot water
XL8	Connection, docking from heat pump
XL9	Connection, docking to heat pump
XL18	Docking connection, supply, from additional heat
XL19	Docking connection, return, to additional heat
XL30	Expansion vessel connection
XL39	Connection, accessory, out

Good to know about VVM S500

Transport

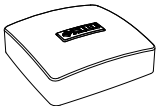
VVM S500 should be transported and stored vertically in a dry place.

However, the VVM S500 can be carefully laid on its back when being moved into the building.

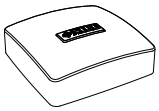


Supplied components

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

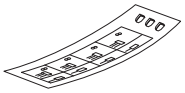


Outdoor temperature sensor
1 x



Room sensor
1 x

Current sensor [1]
3 x



Label for external control voltage for the control system
1 x

1 Only VVM S500 3x400 V.

LOCATION

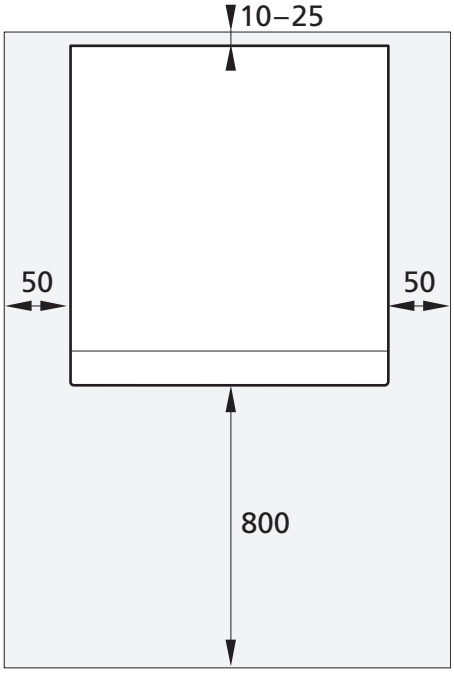
The kit of enclosed items is placed on top of the indoor module.

Assembly

- Position VVM S500 on a solid foundation indoors that withstands water and the weight of the product.
- The space where VVM S500 is located must be frost-free.
- Since water comes from VVM S500, the area where VVM S500 is located must be equipped with floor drainage.

INSTALLATION AREA

Leave a free space of 800 mm in front of the product. All service on VVM S500 can be carried out from the front.



Leave 10 – 25 mm free space between VVM S500 and the wall behind for routing cables and pipes.

Installation

Equipment

VVM S500 is equipped with draining and reversing valves. In addition, VVM S500 is equipped with automatic climate control using outdoor and supply temperature sensors, charge and circulation pump.

Pipe installation, indoor module

Pipe installation must be carried out in accordance with current norms and directives.

VVM S500 is easy to install. All pipe connections are easily accessible. This is especially useful for the replacement market.

MINIMUM SYSTEM FLOWS

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

Each climate system must be dimensioned individually to provide the recommended system flows.

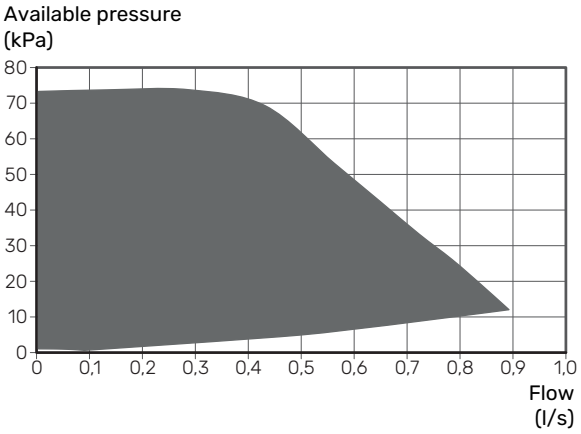
The installation must be dimensioned to provide at least the minimum defrosting flow at 100 % circulation pump operation.

Air/water heat pump	Minimum flow during defrosting 100% circulation pump operation (l/s)	Minimum recommended pipe dimension (DN)	Minimum recommended pipe dimension (mm)
F2050-6	0.19	20	22
F2050-10			
F2050-12	0.29	20	22
F2050-16	0.39	25	28

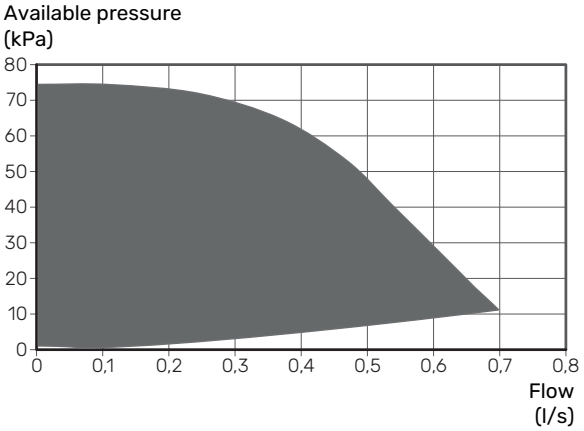
Air/water heat pump	Minimum flow during defrosting 100% circulation pump operation (l/s)	Minimum recommended pipe dimension (DN)	Minimum recommended pipe dimension (mm)
S2125-8	0.32	25	28
S2125-12			
S2125-16	0.38		
S2125-20	0.48	32	35

AVAILABLE EXTERNAL PRESSURE, HEATING SYSTEM

Capacity, heating medium pump



Capacity, charge pump



COLD AND HOT WATER

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

Installation alternative

VVM S500 can be connected in many different ways.

EXTRA CLIMATE SYSTEM

In buildings with several climate systems that require different supply temperatures, the accessory ECS 40/ECS 41 can be connected.

A shunt valve then lowers the temperature to the underfloor heating system, for example.

TAP WATER CONNECTION

The system should be supplemented with an extra water heater, if a large bath tub or other significant consumer of hot water is installed.

Water heater with immersion heater

In a water heater with an immersion heater, the water is initially heated by the heat pump. The immersion heater in the water heater is used for keeping warm and when the heat pump does not have sufficient power.

The water heater's flow is connected after VVM S500.

HOT WATER CIRCULATION

A circulation pump can be controlled by VVM S500 to circulate the hot water. The circulating water must have a temperature that prevents bacterial growth and scalding, and national standards must be satisfied.

The HWC return is connected to a freestanding water heater.

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 heating/cooling to the house is regulated in accordance with the selected heating curve setting (or cooling curve). 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 S500 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 S500 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 S500 in holiday mode, which means that the lowest possible temperature is achieved without the risk of freezing.

Additional heat only

VVM S500 can be used with additional heat only (electric boiler) to produce heating and hot water, for example before the outdoor unit is installed.

Alarm indications

In the event of an alarm, a malfunction has occurred and the status lamp shines with a steady red light. You receive information about the alarm in the smartguide on the display.

myUplink

With myUplink you can control the installation – where and when you want. In the event of any malfunction, you receive an alarm directly to your e-mail or a push notification to the myUplink app, which allows you to take prompt action.

Visit myuplink.com for more information.

SPECIFICATION

You need the following in order for myUplink to be able to communicate with your VVM S500:

- wireless network or network cable
- Internet connection
- account on myuplink.com

We recommend our mobile apps for myUplink.

RANGE OF SERVICES

myUplink gives you access to various levels of service. The base level is included and, apart from this, you can choose two premium services for a fixed annual fee (the fee varies depending on the functions selected).

Service level	Basic	Premium extended history	Premium change settings
Viewer	X	X	X
Alarm	X	X	X
History	X	X	X
Extended history	-	X	-
Manage	-	-	X

MOBILE APPS FOR MYUPLINK

The mobile apps can be downloaded free of charge from where you usually download your mobile apps. Logging into the mobile app is performed using the same account details as on myuplink.com.

MYUPLINK PRO

myUplink PRO is a complete tool for offering service agreements to the end customer and for always having the latest information about the installation, as well as the option to adjust settings remotely.

With myUplink PRO, you can provide your connected customers with rapid status and remote diagnostics.

Visit pro.myuplink.com for information about what else you can do using the mobile app and online.

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 myUplink. To use the function, an Internet connection and account on myUplink are necessary.

WIRELESS UPDATES

When the system is connected, there is the option to receive wireless updates. This provides the system with new functions, giving a better experience. To receive wireless updates, you have to create an account on myUplink.

SMART HOME

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

By allowing connected units to communicate with myUplink, 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 myUplink 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.

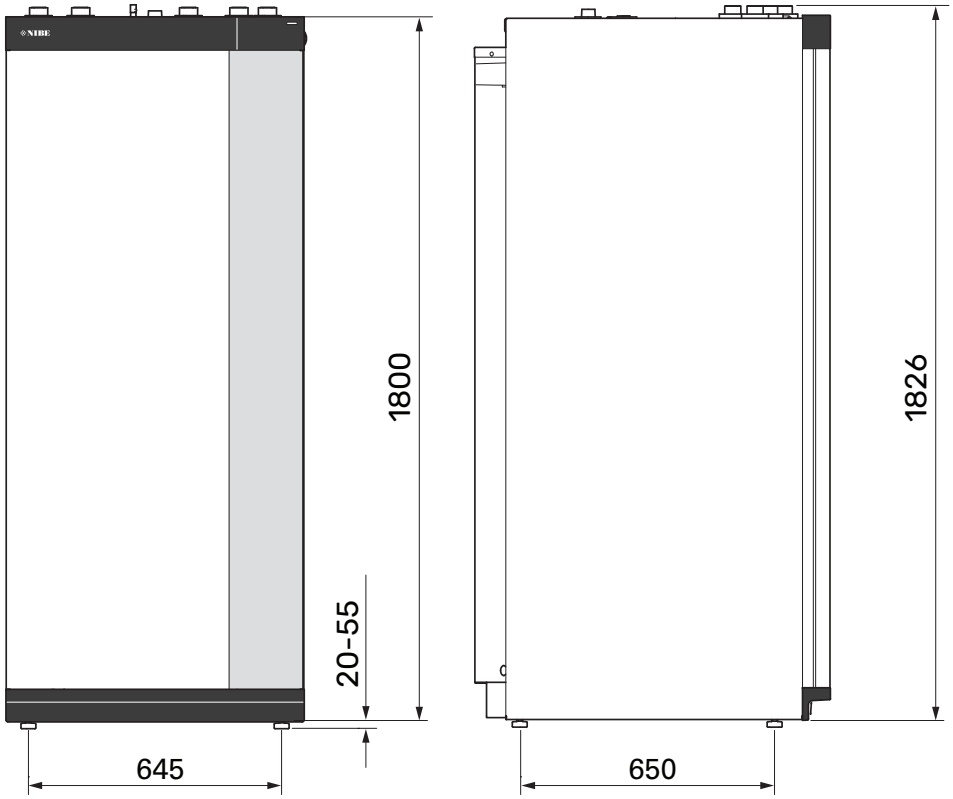
The display

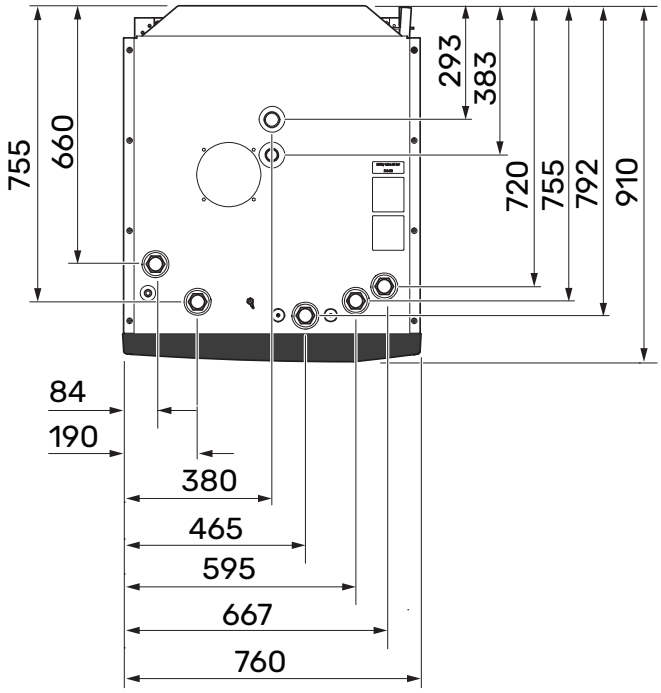
VVM S500 is controlled using a clear and easy to use display.

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.

Technical data

Dimensions





Technical specifications

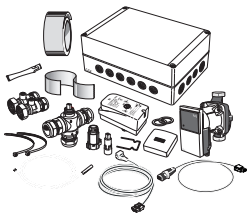
Type		1 x 230 V	3 x 400 V
Electrical data			
Max power, immersion heater (factory setting)	kW	7 (7)	9 (9)
Rated voltage		230 V ~ 50 Hz	400 V 3N ~ 50 Hz
Fuse	A	35 A	20 A
Enclosure class		IPX1B	
Equipment Compliant with IEC 61000-3-12			
For Connection Design Purposes, Compliant with IEC 61000-3-3 technical requirements			
WLAN			
2.412 - 2.484 GHz max power	dbm	11	
Wireless units			
2.405 - 2.480 GHz max power	dbm	4	
Heating medium circuit			
Max system pressure heating medium	MPa (bar)	0.6 (6)	
Min system pressure heating medium	MPa (bar)	0.05 (0.5)	
Cut-off pressure, heating medium	MPa (bar)	0.25 (2.5)	
Max. heating medium temperature	°C	70	
Pipe connections			
Heating medium ext Ø		G1 inv	
Hot water connection ext Ø		G1 inv	
Cold water connection ext Ø		G1 inv	
Heat pump connections ext Ø		G1 inv	
Hot water and heating section			
Volume hot water coil	litre	22.8	
Volume, total indoor	litre	500	
Volume buffer vessel	litre	80	
Cut-off pressure, hot water coil	MPa (bar)	1.0 (10)	
Max permitted pressure in the indoor module	MPa (bar)	0.6 (6)	
Capacity, hot water heating according to EN16147			
Tap volume 40 °C (comfort mode Medium)	litre	390	
Dimensions and weight			
Width	mm	760	
Depth	mm	910	
Height	mm	1,846	
Required ceiling height	mm	1,942	
Weight	kg	218	
Corrosion protection		Stainless	
Part no.			
Part no.		069 277	069 276

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[1]



ACS 310 is an accessory that enables VVM S500 to control the production of cooling.

Part no. 067 248

[1] The accessory requires that NIBE outdoor unit is installed.

Docking kit DEH

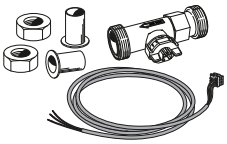
There is a separate docking kit available for connecting other heat sources to VVM S500.

DEH S500

Docking kit wood/oil/pellets.

Part no. 067 963

Energy measurement kit EMK 500



This accessory is installed externally and used to measure the amount of energy that is supplied for the pool, hot water, heating and cooling in the building.

Part no. 067 178

External electric additional heat ELK

These accessories require accessory DEH S500 (step controlled additional heat).

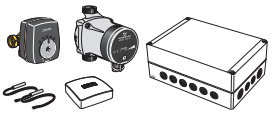
ELK 15
15 kW, 3 x 400 V
Part no. 069 022

ELK 26
26 kW, 3 x 400 V
Part no. 067 074

ELK 42
42 kW, 3 x 400 V
Part no. 067 075

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

Extra shunt group ECS



This accessory is used when VVM S500 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
Approx. 80-250 m²

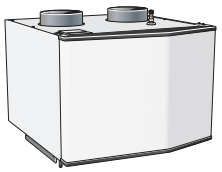
Part no 067 288

Humidity sensor HTS 40

This accessory is used to show and regulate humidity and temperatures during both heating and cooling operation.

Part no. 067 538

Exhaust air unit S135[1]

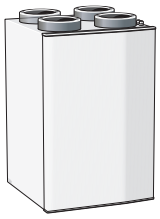


S135 is an exhaust air module specially designed to combine recovery of mechanical exhaust air with an air/water heat pump. Indoor module/control module controls S135.

Part no. 066 161

[1] The accessory requires that NIBE outdoor unit 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[2]
Part no. 066 068

ERS 30-400[3]
Part no. 066 165

ERS S40-350
Part no. 066 166

1 A preheater may be required.
2 A preheater may be required.
3 A preheater may be required.

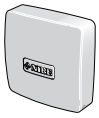
Auxiliary relay

Auxiliary relay is used to control external 1 to 3 phase loads, such as, for example, oil burners, immersion heaters and circulation pumps.

HR 10
Recommended max fuse for control current 10 A.
Part no 067 309

HR 20
Recommended max fuse for control current 20 A.
Part no. 067 972

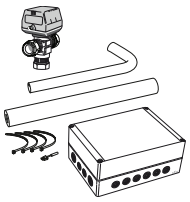
Communication module for solar electricity EME 20



EME 20 is used to enable communication and control between inverters for solar cells from NIBE and VVM S500.

Part no. 057 215

Pool heating POOL 500[1]



POOL 500 is an accessory that enables pool heating with VVM S500.

Part no. 067 181

[1] The accessory requires that NIBE outdoor unit is installed.

Room unit RMU S40

The room unit is an accessory with a built-in room sensor, which allows the control and monitoring of VVM S500 to be carried out in a different part of your home to where it is located.

Part no. 067 650

Solar package NIBE PV

NIBE PV is a modular system comprising solar panels, assembly parts and inverters, which is used to produce your own electricity.

Accessory card AXC 40

This accessory is used to enable connection and control of shunt-controlled additional heat, step-controlled additional heat or external circulation pump.

Part no. 067 060

Wireless accessories

It is possible to connect wireless accessories to VVM S500, e.g. room, humidity, CO_2 sensors.

Buffer vessel UKV

A buffer vessel is an accumulator tank that is suitable for connection to a heat pump or another external heat source, and can have several different applications.

UKV 40
Part no. 088 470

UKV 100
Part no. 088 207

UKV 200 Cooling
Part no. 080 321

UKV 300 Cooling
Part no. 080 330

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.

NIBE Energy Systems
Box 14, SE-285 21 Markaryd
nibe.eu

PBD EN 2423-1 M13333