Outline principle

VVM 500 docked with heat pump, additional heat and accessory (floating condensing)

Application

Buildings with water-borne heating systems.

Alternative

☑ One climate system

☐ Two climate systems

☑ Hot water

☐ HWC

☑ Heat pump

☐ Boiler

☐ Electrical addition

☐ Electric heater

☐ Stove with back boiler

☐ Solar

☐ Pool with heat pump and solar

☐ Pool with heat pump

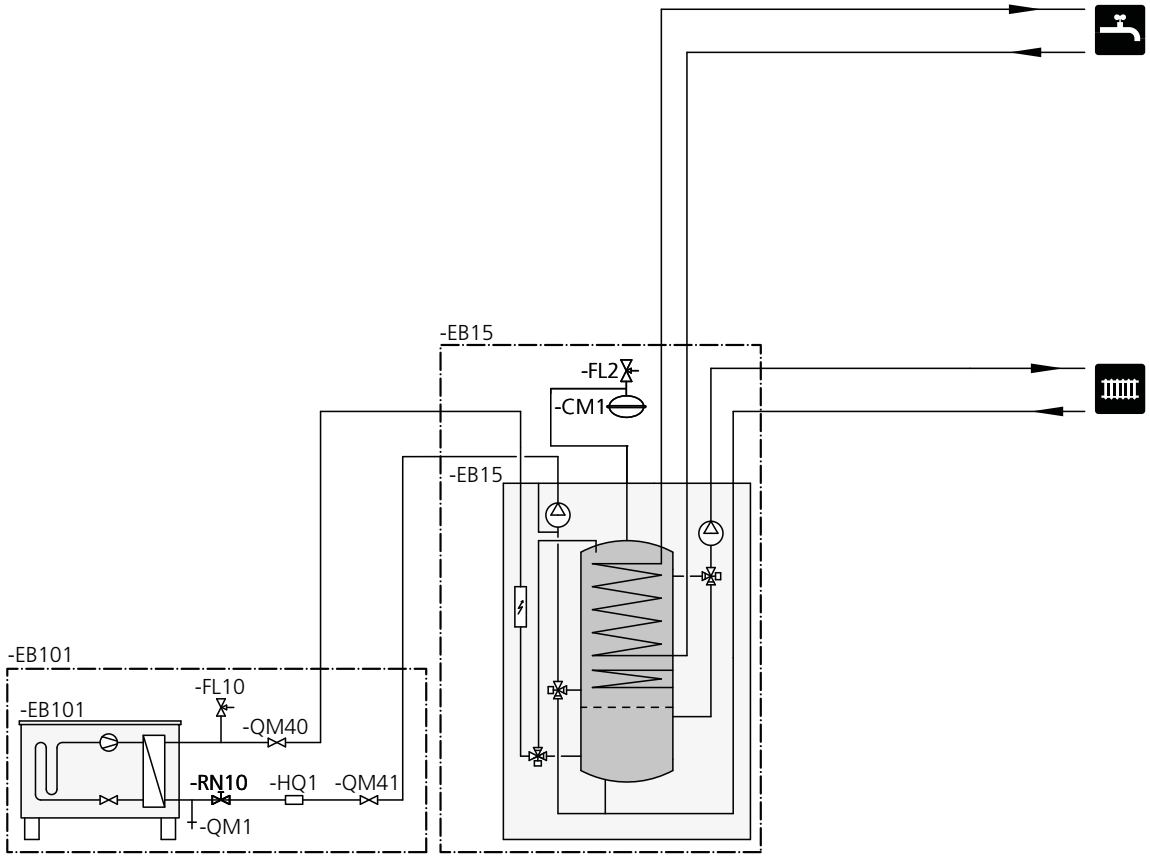
☐ Pool with solar

Start again

NOTE! This is an outline diagram. Actual installation must be project planned according to applicable norms.

See the appropriate "Installer manual"/"Installation and Maintenance Instructions" for more information.

Designations according to standard IEC 81346-1 and 81346-2.



Function

Basic functions

Heat production

The automatic heating control system on VVM 500 is controlled by the outside temperature. This means that the supply of heat to the house is regulated in accordance with the chosen setting of the regulating curve (curve slope and offset). After adjustment, the correct amount of heat is provided to satisfy the heating needs of the house at the relevant outdoor temperature. During heat production the control system calculates a heating deficit in the form of "degree-minutes", which means that heating production is accelerated. The larger the subnormal temperature, the greater the heat production. In order for the system to compensate more quickly the supplied room sensors should be installed.

Hot water production

During hot water production VVM 500 goes into hot water mode. No heat is produced in this mode. Maximum time for hot water charging can be adjusted in the menu system. After this, heating is produced for the remaining period of time before further water heating can take place.

Hot water charging starts when the hot water sensor has fallen to the set start temperature. Hot water charging stops when the hot water temperature on the hot water sensor (BT6) has been reached.

For occasional higher demand for hot water, the "temporary lux" function can be used to raise the temperature for 3 - 12 hours (selected in the menu system).

Heat pump

F2025/F2026/F2300 can be connected to VVM 500.

The heat pump charges VVM 500, when the heating requirement exceeds the heat pump capacity, the immersion heater in VVM 500 is engaged as additional heating (max available internal electrical addition is 9 kW).

Extended functions

Extra climate system

For this function accessory ECS 40/ECS 41 is required.

A shunt valve, supply and return line sensor and circulation pump are connected to a second heating circuit with a lower temperature demand (e.g. under floor heating system). The temperature in the extra climate system is controlled by the indoor module and the shunt valve by offsetting the heat curve (each climate system has its own heat curve), room sensor or room unit.

Up to 3 extra climate systems can be connected to the indoor module.

Hot water circulation (VVC)

One pump can be controlled for the circulation of the hot water during selectable periods.

Boiler/electrical addition

This function requires the DEH 500 accessory and enables an external addition, for example electricity, oil, wood or pellet boiler, to help with heating and increase the set power during heat pump operation.

If the indoor module does not manage to keep the correct supply temperature, the addition starts and the shunt in VVM 500 is activated. The shunt adjusts so the true supply temperature corresponds with the control system's theoretical calculated set point value. When the heating demand drops sufficiently so the additional heat is no longer required the shunt closes completely. The boiler will be kept warm for a further 12 hours to be prepared for any increase in the heating requirement.

Immersion heater

It is possible to connect an additional electric heater to the charge circuit to cover the heat pump in the event of malfunctions. The electric heater must be dimensioned to be able to cover the heat pump output and connected to the AUX-input in VVM 500. All the power is connected in one step.

Stove with back boiler

This function requires the SCA 30 accessory and enables a stove with back boiler to aid with heating.

Supply and return lines are connected to terminals XL13 resp. XL14 in VVM 500.

Solar panels

This function requires the SCA 30 accessory and a pump station and is suitable for installations with up to 10 m^2 solar panels.

The solar panel can be used to heat the accommodation and/or the hot water.

Pool with heat pump and solar

This function requires the accessories POOL 500, SCA 30 and a pump station and is suitable for installations with up to 10 m^2 solar panels.

A reversing valve (QN19) can be connected to control part, or all, of the charge flow from the heat pump to a pool exchanger.

The solar panels charge VVM 500. When the desired temperature is reached the heat pump is blocked and the solar panels heat the pool. During pool heating with the heat pump, the charge flow is circulated between the heat pump and pool exchanger using a charge pump in VVM 500 (GP12), thereafter the charge flow circulates between VVM 500 and the pool exchanger using an external circulation pump (GP14).

VVM 500's internal circulation pump (GP1) circulates the heating medium water in the climate system and the additional heat can be engaged as necessary, at the same time as the internal supply temperature sensor (BT2) continually meters the heating demand of the house.

Pool with heat pump

This function requires accessory POOL 500.

A reversing valve (QN19) can be connected to the charge flow from the heat pump to a pool exchanger.

During pool heating the charge flow is circulated between the heat pump and the pool exchanger using the charging pump in VVM 500 (GP12).

VVM 500's internal circulation pump (GP1) circulates the heating medium water in the climate system at the same time as the internal supply temperature sensor (BT2) continually meters the heating demand of the house.

Pool with solar

This function requires the accessories POOL 500, SCA 30 and a pump station and is suitable for installations with up to 10 m^2 solar panels.

The solar panels charge VVM 500.

During pool heating the charge flow is circulated between VVM 500 and the pool exchanger using an external circulation pump (GP14).

VVM 500's internal circulation pump (GP1) circulates the heating medium water in the climate system and the additional heat can be engaged as necessary, at the same time as the internal supply temperature sensor (BT2) continually meters the heating demand of the house.

List of Components

VVM 500 docked with heat pump, additional heat and accessory (floating condensing)

Pos	Name	Specification	Manufacturer	Part no.	Remarks
CL11	**Pool system**				
AA25	Control unit	Included in POOL 500	NIBE	067 181	
BT51	Temperature sensor, pool	Included in POOL 500	NIBE	067 181	
EP5	Exchanger, pool				
GP9	Circulation pump				
GP14	Circulation pump cooling				Only when connecting solar power to pool
HQ1	Particle filter				
QN19	Three way valve, pool	Included in POOL 500	NIBE	067 181	
RM1	Non-return valve				Only when connecting solar power to pool
EB2	**Electric boiler system**				
AA25	Control unit	Included in DEH 500	NIBE	067 180	
EB2	Electric boiler	ELK 15/ELK 26/ELK 42	NIBE	069 022 / 067 074 / 067 075	
GP15	Charge pump, external heat source				
EB3	**Immersion heater system**				
EB3	Immersion heater	ELK 15/ELK 26	NIBE	069 022 / 067 074	
EB15	**Indoor module system**				
EB15	Indoor module	VVM 500	NIBE	069 400	
FL2	Safety valve, heating medium				
CM1	Expansion vessel, heating medium				
EB101	**Heat pump system**				
EB101	Heat pump	F2025/F2026/F2300	NIBE		F2025: The software must be 51 or later.
FL10	Safety valve, heat pump				
HQ1	Particle filter	Included in F2XXX	NIBE		
QM1	Drain valve, heating medium				
QM40-41	Shut-off valve				
RN10	Trim valve				
EM1	**External addition**				
AA25	Control unit	Included in DEH 500	NIBE	067 180	
BT52	Temperature sensor, boiler	Included in DEH 500	NIBE	067 180	
EM1	Oil, gas, pellets or wood boiler				
GP15	Charge pump, external heat source				
EM2	**Stove with back boiler**				
AA25	Control unit	Included in SCA 30	NIBE	067 179	
BT53	Temperature sensor, solar	Included in SCA 30	NIBE	067 179	

Pos	Name	Specification	Manufacturer	Part no.	Remarks
CM5	Expansion vessel				
EM2	Stove with back boiler				
EP21	**Climate system 2**				
AA25	Control unit	Included in ECS 40/ECS 41	NIBE	067 287/067 288	
BT2	Temperature sensors, heating medium flow	Included in ECS 40/ECS 41	NIBE	067 287/067 288	
BT3	Temperature sensors, heating medium return	Included in ECS 40/ECS 41	NIBE	067 287/067 288	
GP20	Circulation pump, extra climate system	Included in ECS 40/ECS 41	NIBE	067 287/067 288	
QN11	Shunt valve	Included in ECS 40/ECS 41	NIBE	067 287/067 288	
EP30	**Solar heating system**				
AA25	Control unit	Included in SCA 30	NIBE	067 179	
BT53	Temperature sensor, solar	Included in SCA 30	NIBE	067 179	
CM5	Expansion vessel				
EP8	Solar panels				
GP30	**Pump station**				
FL4	Safety valve, solar				
GP4	Circulation pump, solar				
QM40-42	Shut-off valve				
RM1-2	Non-return valve				
QZ1	**Hot water circulation**				
GP9	Circulation pump				