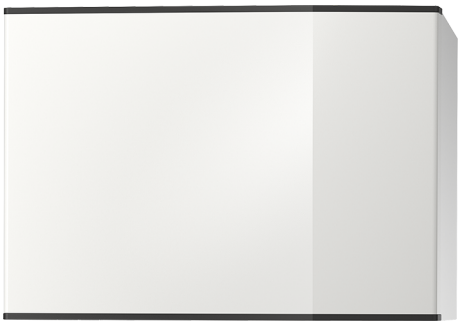
Installation manual

Exhaust air module
NIBE S135



IHB EN 2426-1
731959

Table of Contents

Important information

Safety information

This manual describes installation and service procedures for implementation by specialists.

The manual must be left with the customer.

For the latest version of the product's documentation, see nibe.eu.

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

This is an original manual. It may not be translated without the approval of NIBE.

Do not start S135 if there is a risk that the water in the system has frozen.

Electrical installation and wiring must be carried out in accordance with national provisions.

If the supply cable is damaged, only NIBE, its service representative or similar authorised person may replace it to prevent any danger and damage.

Symbols

Explanation of symbols that may be present in this manual.

CAUTION!

This symbol indicates danger to person or machine.

NOTE!

This symbol indicates important information about what you should consider when installing or servicing the installation.

TIP!

This symbol indicates tips on how to facilitate using the product.

Marking

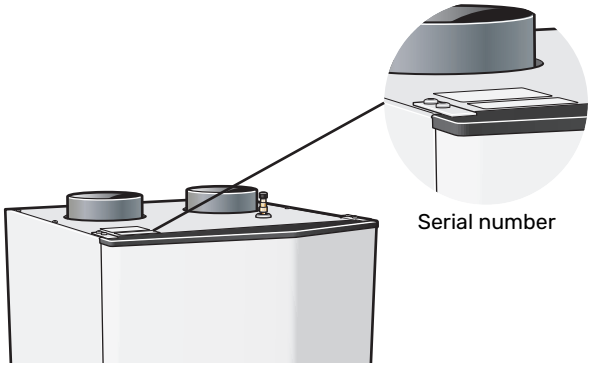
Explanation of symbols that may be present on the product's label(s).

Danger to person or machine.

Read the Installer Manual.

Serial number

The serial number can be found to the left, on top of S135.



NOTE!

You need the product's (14 digit) serial number for servicing and support.

Recovery

Leave the disposal of the packaging to the installer who installed the product or to special waste stations.

Do not dispose of used products with normal household waste. It must be disposed of at a special waste station or dealer who provides this type of service.

Improper disposal of the product by the user results in administrative penalties in accordance with current legislation.

Inspection of the installation

Current regulations require the heating installation to be inspected before it is commissioned. The inspection must be carried out by a suitably qualified person.

✔	Description	Notes	Signature	Date
Ventilation, exhaust air (page 15)				
	Setting the ventilation flow			
	Exhaust air filter			
Heating medium (page 21)				
	System flushed			
	System vented			
	Circulation pump setting			
	System pressure			
Electricity (page 18)				
	Supply connected 230 V			
	Circuit fuses			

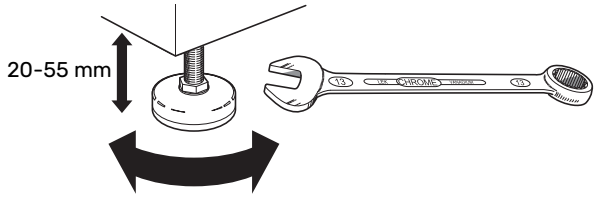
Delivery and handling

Transport

S135 should be transported and stored vertically in a dry place.

Assembly

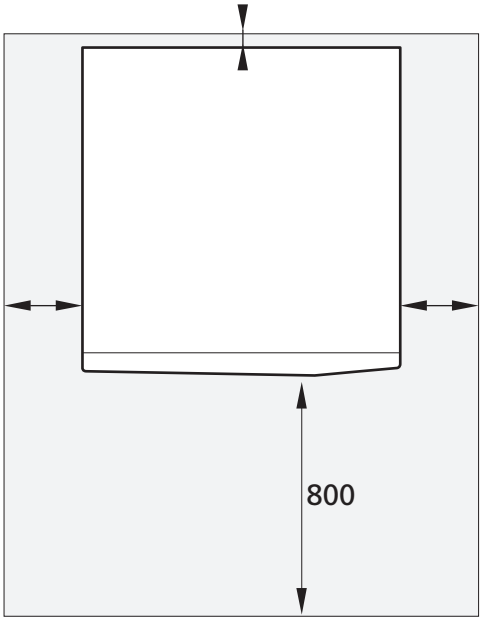
- S135 is installed freestanding on brackets or on a suitable flat surface indoors. Noise from the circulation pump, fan and compressor may be transferred to the bracket or the surface on which S135 is placed.
- Use the product's adjustable feet to attain a horizontal and stable set-up.



- Since water comes from S135, the area where S135 is located must be equipped with floor drainage.
- Because water comes from S135, the floor coating is important. A waterproof floor or floor membrane is recommended.
- Install with its back to an outside wall, ideally in a room where noise does not matter, in order to eliminate noise problems. If this is not possible, avoid placing it against a wall behind a bedroom or other room where noise may be a problem.
- Wherever the unit is located, walls to sound sensitive rooms should be fitted with sound insulation.
- Route pipes so they are not fixed to an internal wall that backs on to a bedroom or living room.
- The installation area always has to have a temperature of at least 10 °C and max. 30 °C.

INSTALLATION AREA

Leave a free space of 800 mm in front of the product. Leave free space between S135 and wall/other machinery/fittings/cables/pipes etc. It is recommended that a space of at least 10 mm is left to reduce the risk of noise and of any vibrations being propagated.

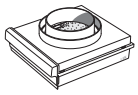


CAUTION!

Ensure that there is sufficient space (300 mm) above S135 for connecting ventilation ducts.

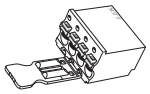
Supplied components

Silencer

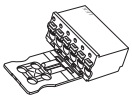


Filter cartridge

Choke washer Ø 22 mm [1]



4-pin connector



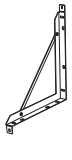
6-pin connector

Drain hose Ø 20 mm
Length 2200 mm

Power supply cable

Communication cable

Circulation pump



2 x bracket
6 x screws

6 x nuts
4 x washers

[1] Only for VVM 310 / VVM 500

LOCATION

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

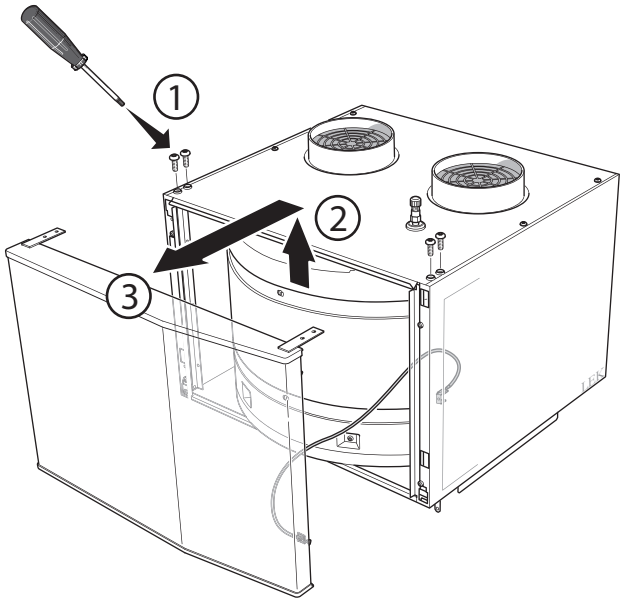
Compatible products

- VVM S320
- VVM S330
- SMO S40
- VVM S325
- MHB 05
- SVM S332

Handling panels

FRONT HATCH

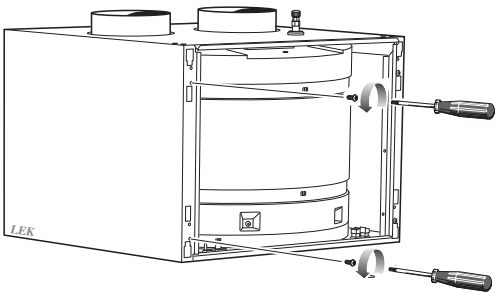
1. Loosen the screws for the securing plates above S135.
2. Slide the hatch upwards.
3. Pull the hatch towards yourself.



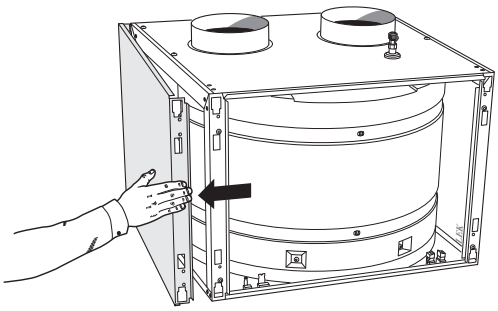
> **CAUTION!**
>
> An earth cable is installed in the hatch, which can therefore only be lifted out 35 cm. If the hatch needs to be removed completely, the cable must be disconnected.

REMOVE SIDE PANELS

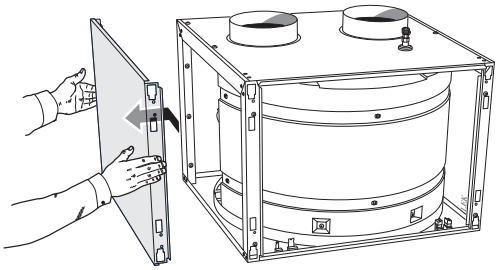
1. Undo the screws at the edge.



2. Twist the panel slightly outwards.



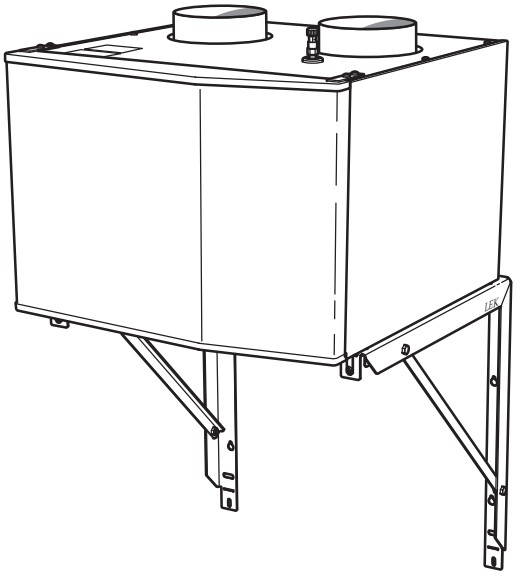
3. Move the panel outwards and backwards.



4. Assembly takes place in the reverse order.

Mounting

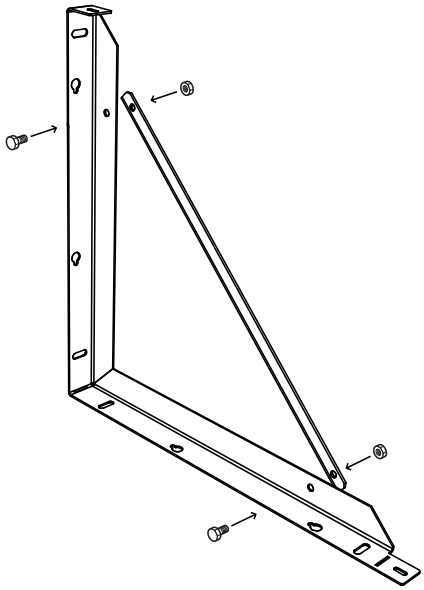
The exhaust air module is wall-mounted using the brackets enclosed. The exhaust air module can also be placed on a suitable flat surface.



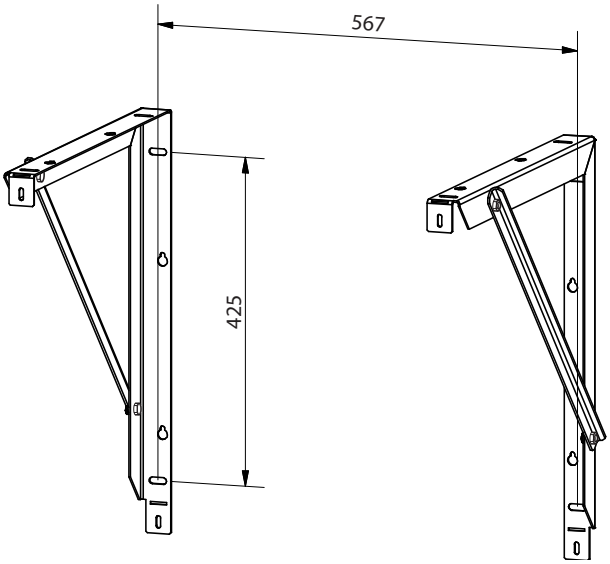
> **CAUTION!**
>
> Check that the mountings are located in the intended grooves on the exhaust air module.
>
> Ensure that the exhaust air module is installed horizontally.

INSTALLING BRACKETS

1. Install the brackets together using the M6 screws and nuts supplied.

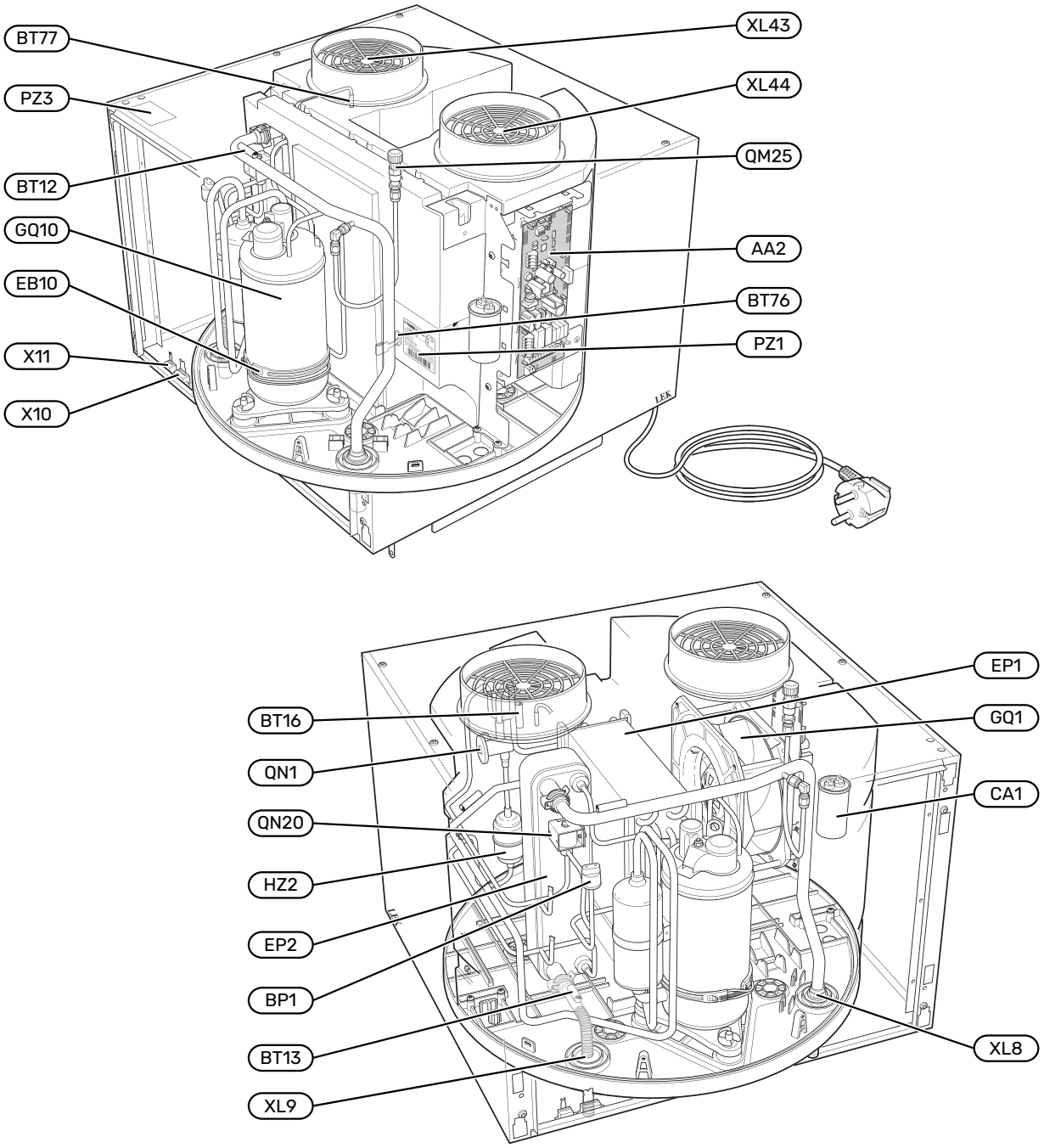


2. Drill holes in the wall as illustrated.



3. Mount the brackets on the wall.
4. Screw S135 into place in the brackets using the M5 screws and nuts supplied.

The exhaust air module design



List of components

PIPE CONNECTIONS

XL8	Heating medium connection, supply
XL9	Heating medium connection, return
XL43	Connecting incoming air
XL44	Connecting outgoing air

HVAC COMPONENTS

QM25	Vent valve, hot water
WM2	Overflow water discharge

SENSORS

BP1	High pressure pressostat
BT12	Temperature sensor, condenser out
BT13	Temperature sensor, heating medium return before condenser
BT16	Temperature sensor, evaporator
BT76	Temperature sensor, defrosting
BT77	Temperature sensor, incoming air

ELECTRICAL COMPONENTS

AA2	Base card
CA1	Capacitor
EB10	Compressor heater
X10	PWM switch, circulation pump
X11	Terminal block, communication main unit

COOLING COMPONENTS

EP1	Evaporator
EP2	Condenser
GQ10	Compressor
HZ2	Drying filter
QN1	Expansion valve
QN20	Solenoid valve, defrosting

VENTILATION

GQ1	Fan
HQ12	Air filter [1]

MISCELLANEOUS

PZ1	Rating plate
PZ3	Serial number plate

Designations according to standard EN 81346-2.

1 Not visible in the image.

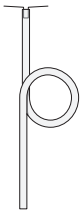
Pipe and air connections

General pipe connections

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

All connections are equipped with smooth pipe for compression ring couplings.

Overflow water from the evaporator's collecting trough is routed via the supplied plastic hose to a drain. Shape the hose into a water seal (see image). The entire length of the overflow water pipe must be inclined to prevent water pockets and must also be frost-proof.



To make the installation energy efficient, NIBE recommends that all pipes are insulated. The insulation should be at least 12 mm thick.

> **CAUTION!**
>
> The pipe systems have to be flushed clean before the product is connected, to prevent any contaminants from damaging the components.

SYMBOL KEY

Symbol	Meaning
	Unit box
	Shut-off valve
	Non-return valve
	Circulation pump
	Expansion valve
	Fan
	Compressor
	Shut off valve
	Particle filter
	Temperature sensor
	Reversing valve/shunt
	Heat exchanger
	Indoor module
	Cooling system
	Pool
	Outdoor module
	Ventilation

SYSTEM DIAGRAM

S135 is an exhaust air module.

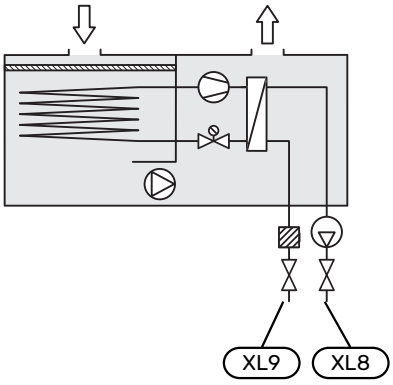
When the air passes through the evaporator, the refrigerant evaporates because of its low boiling point. In this way the energy in the air is transferred to the refrigerant.

The refrigerant is then compressed in the compressor, causing the temperature to rise considerably.

The warm refrigerant is led to the condenser. Here, the refrigerant gives off its energy to the hot water, whereupon the refrigerant changes state from gas to liquid.

The refrigerant then goes via filters to the expansion valve, where the pressure and temperature are reduced.

The refrigerant has now completed its circulation and returns to the evaporator.

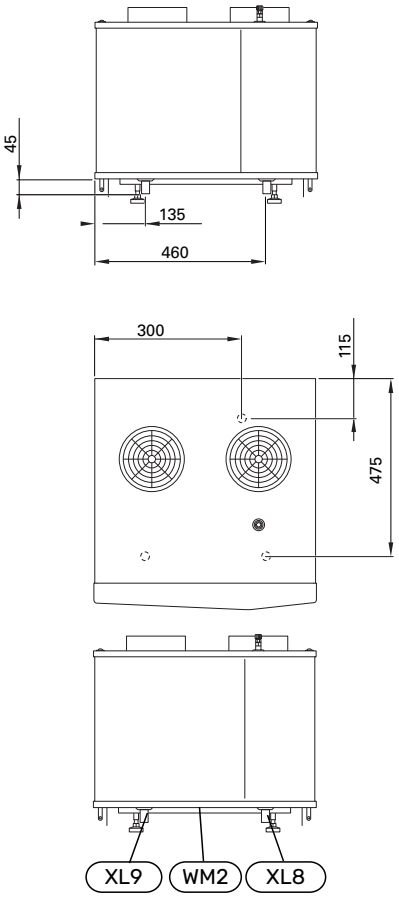


XL8	Heating medium connection, supply
XL9	Heating medium connection, return

NOTE!

This is a principle of operation. For more detailed information about S135, see section "The exhaust air module design ".

Dimensions and pipe connections

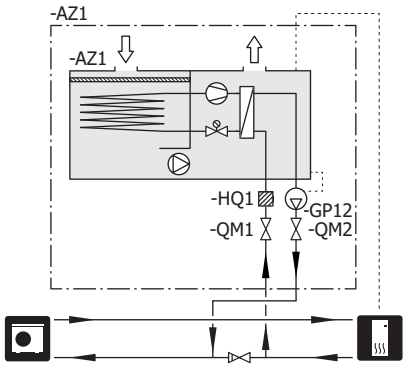


PIPE DIMENSIONS

Connection		
XL8 Heating medium connection, supply ext ⌀	(mm)	22
XL9 Heating medium connection, return ext ⌀	(mm)	22
WM2 Overflow water discharge int ⌀	(mm)	20

Connecting to indoor module and outdoor unit

Heating medium connection, supply (XL8) and heating medium connection, return (XL9) are connected to the return line between the indoor module and the outdoor unit. The particle filter must be installed before S135 to prevent dirt from depositing in S135. Install the shut-off valves outside S135 to facilitate any future servicing.

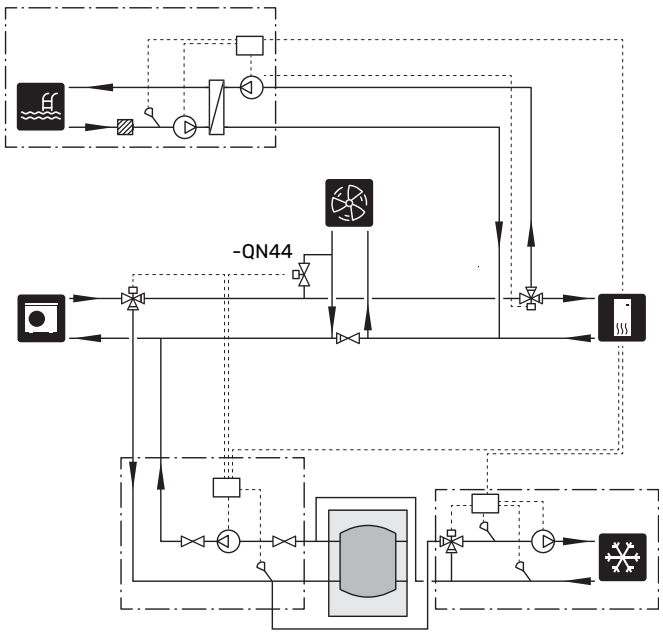


Installation alternative

S135 must be connected according to the instructions in this manual.

DOCKING S135, NIBE VVM, OUTDOOR UNIT, POOL, COOLING

S135 connected in a system with 4-pipe cooling. In these cases, 4-pipe cooling must be connected between the outdoor unit and S135. In systems with cooling, a shut-off valve (QN44) is required. When there is also a pool, S135 must be connected between 4-pipe cooling and the pool.



General ventilation connections

- Ventilation installation must be carried out in accordance with current norms and directives.
- Provision must be made for inspection and cleaning of the duct.
- Make sure that there are no reductions of cross-sectional area in the form of creases, tight bends, etc., since this will reduce the ventilation capacity.
- The air duct system must be a minimum of air tightness class B.
- To prevent fan noise being transferred to the ventilation devices, install silencers in suitable locations in the duct system.
- Ducts that may become cold must be insulated with diffusion-proof material (at least PE30 or equivalent) along their entire length.
- Ensure that the condensation insulation is fully sealed at any joints and/or at lead-in nipples, silencers, roof cowls or similar.
- A duct in a masonry chimney stack must not be used for extract air.
- The exhaust air module must be provided with the enclosed filter cartridge.

EXHAUST AIR DUCT /KITCHEN FAN

Exhaust air duct (kitchen fan) must not be connected to S135.

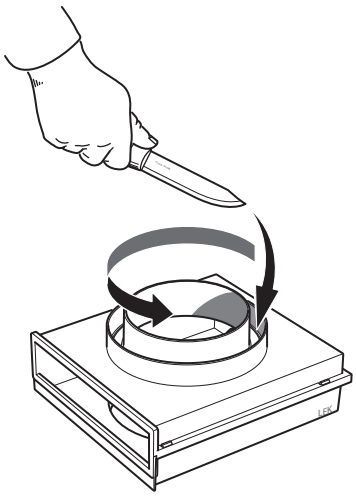
To prevent cooking odours from being led to the S135, the distance between the kitchen fan and the exhaust air valve must be taken into consideration. The distance must not be less than 1.5 m, but may vary between different installations.

Always use a kitchen fan when cooking.

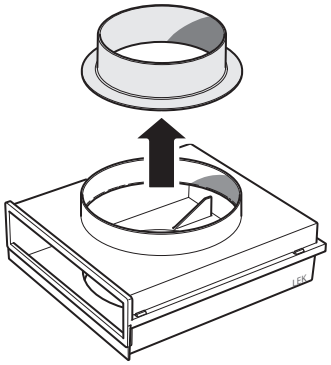
INSTALL THE FILTER CARTRIDGE

The filter cartridge has two sizes of connector, 125 mm or 160 mm.

1. Check the diameter of the air channel for inlet air.
2. When the air duct has a large diameter (Ø 160 mm), the inner ring must be cut out of the upper section of the filter cartridge.
3. Cut just inside the inner edge of the outer ring using a sharp knife. The plastic is prepared for easy cutting.



4. Remove the inner ring.



5. Press the filter cartridge into place in the connection for incoming air (XL43).

INSTALL THE SILENCER

1. Remove the plugs from the silencer enclosed.
2. Install the silencer in the connection for the outgoing air (XL44).

Ventilation flows

Connect S135 so that all the exhaust air, except kitchen duct air (kitchen fan), passes through the evaporator (EP1) in the exhaust air module.

The ventilation flow must comply with the applicable national standards.

For optimum exhaust air module performance, the ventilation flow must not be less than 20 l/s (72 m³/h) at the normal exhaust air temperature. At lower exhaust air temperatures, a higher flow is required.

Set the ventilation capacity in the main product's menu system (menu 7.1.4 - "Ventilation").

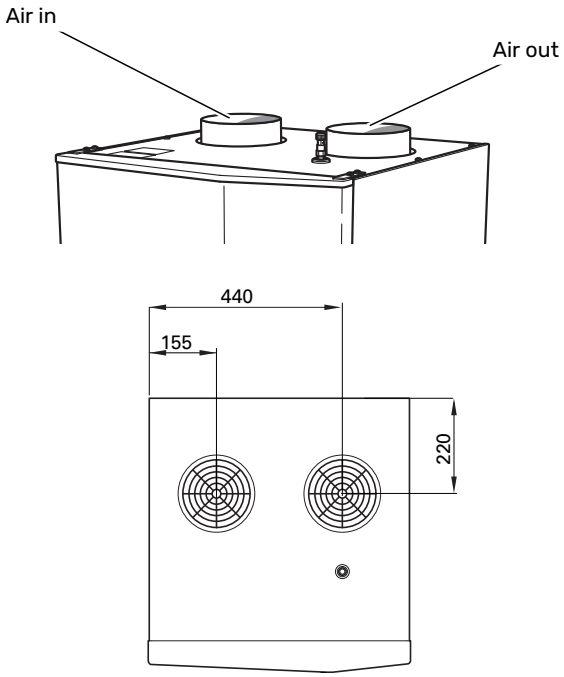
Adjusting ventilation

To obtain the necessary air exchange in every room of the house, the exhaust air devices must be correctly positioned and adjusted and the fan in the exhaust air module adjusted.

Immediately after installation adjust the ventilation so that it is set according to the projected value of the house.

Incorrect adjustment of the ventilation may lead to reduced installation efficiency and thus poorer operating economy, a poorer indoor climate and moisture damage in the building.

Dimensions and ventilation connections



Electrical connections

General

- Electrical installation and wiring must be carried out in accordance with national provisions.
- Disconnect S135 before insulation testing the house wiring.
- If a miniature circuit breaker is used, this must have at least triggering characteristic "C". See section "Technical specifications" for fuse size.
- To prevent interference, communication cables to external connections must not be laid in the vicinity of high voltage cables.
- The minimum area of communication and sensor cables to external connections must be 0.5 mm² up to 50 m, for example EKKX, LiYY or equivalent.
- For an electrical wiring diagram for S135, see the "Technical specifications" section.

CAUTION!

Electrical installation and any servicing must be carried out under the supervision of a qualified electrician. Turn off the power with the circuit breaker before servicing.

CAUTION!

If the supply cable is damaged, only NIBE, its service representative or similar authorised person may replace it to prevent any danger and damage.

CAUTION!

Check the connections, main voltage and phase voltage before the product is started, to prevent damage to the heat pump electronics.

CAUTION!

Do not start the system before filling up with water. Components in the system could be damaged.

Connections

SUPPLY

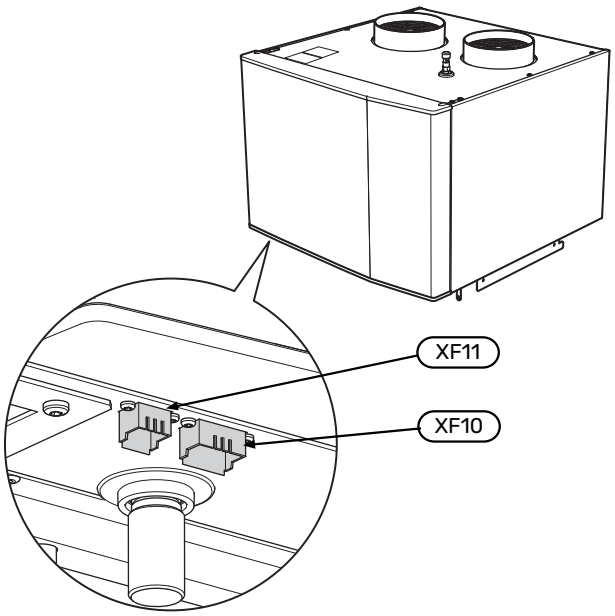
S135 is connected to a earthed single-phase wall socket or a permanent installation. For permanent installations, S135 must be preceded by a circuit breaker with at least a 3 mm breaking gap.

CAUTION!

The circulation pump must not be supplied with power before S135 is activated in the main unit.

COMMUNICATION

S135 is connected to the main unit and circulation pump via the connectors (XF10) and (XF11), which are placed underneath S135.



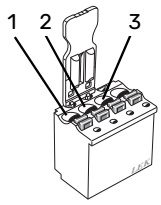
INDOOR MODULE

Connect the indoor module's PCB (AA2-X30) to the supplied 4-pin connector (X11) according to the table.

Connect the connector (X11) to (XF11).

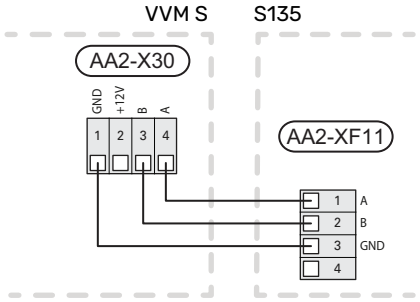
Use a 3 core cable of at least 0.5 mm² cable area.

Indoor module	Contact
AA2-X30:1	X11:3
AA2-X30:3	X11:2
AA2-X30:4	X11:1



X11

> **CAUTION!**
>
> Cable between the indoor module and S135 must be a max of 15 m.

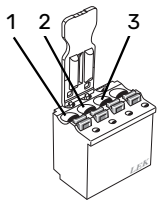


CONTROL MODULE

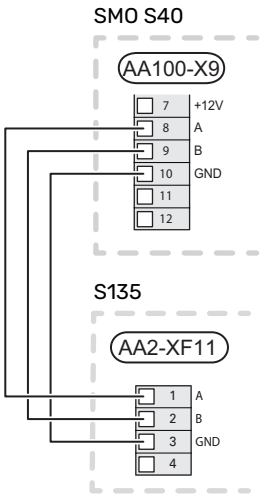
Connect the control module's joint board (AA100-X9) to the supplied 4-pin connector (X11) according to the table.

Connect the connector (X11) to (XF11).

Control module	Contact
AA100-X9:8	X11:1
AA100-X9:9	X11:2
AA100-X9:10	X11:3



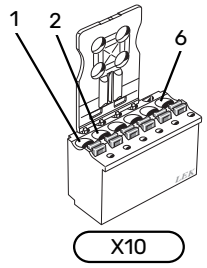
X11



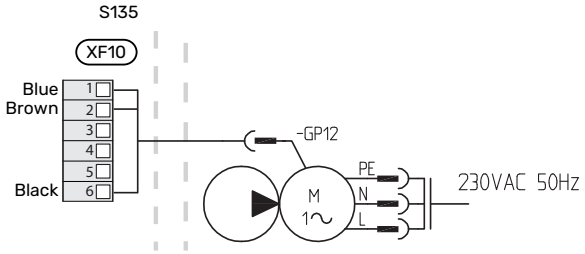
CIRCULATION PUMP

Connect the circulation pump's communication cable to the supplied 6-pin connector (X10) according to the table.

Communication cable	Contact
Blue	X10:1
Brown	X10:2
Black	X10:6

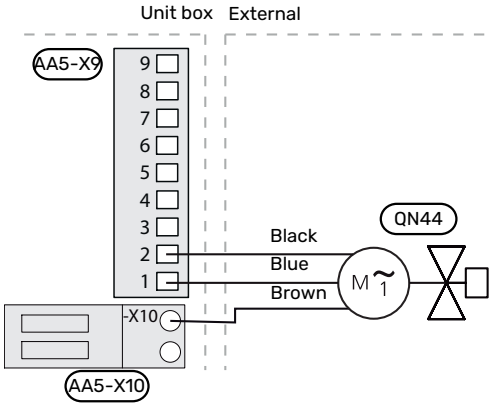


Connect the connector (X10) to (XF10) and connect the cable to the circulation pump.



SHUT-OFF VALVE (QN44)

Connect the shut-off valve's motor (QN44) to AA5-X9:2 (signal), AA5-X9:1 (N) and AA5-X10:2 (230 V) in the cooling accessory's unit box.



Commissioning and adjusting

Preparations

1. Check that the switch for the main unit is in the "⏻" position.
2. Cut the power to S135.
3. Check that the filling valves are fully closed.

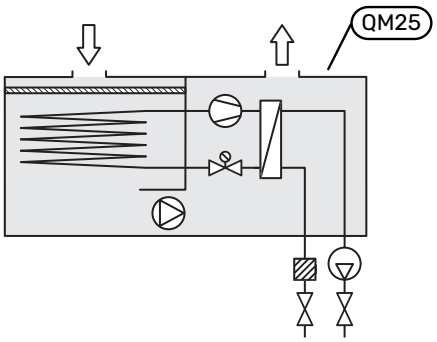
Filling and venting

FILLING THE CLIMATE SYSTEM

1. Check that the externally mounted shut-off valves for the heating system are open.
2. Open the vent valve (QM25).
3. Open the externally mounted filler valves. S135 and the rest of the climate system are filled with water.
4. When the water exiting the vent valve (QM25) is not mixed with air, close the valve.
5. After a while, the pressure rises on the external pressure gauge. When the pressure reaches 2.5 bar (0.25 MPa), the external safety valve starts to release water. Close the external filling valve.
6. Reduce the boiler pressure to the normal working range (approx. 1 bar) by opening the vent valve (QM25) or the external safety valve.

VENTING THE CLIMATE SYSTEM

1. Cut the power to the exhaust air module.
2. Vent the exhaust air module via the vent valve (QM25) and the rest of the climate system via the relevant vent valves.
3. Keep topping up and venting until all air has been removed and the pressure is correct.



Start-up and inspection

START-UP

> **CAUTION!**
> There must be water in the climate system before S135 is started.

> **CAUTION!**
> The circulation pump must not be supplied with power before S135 is activated in the main unit.

1. Start S135 by connecting the supply cable.
2. Follow the instructions in the start guide in the main unit's display. If the start guide does not start when you start the main unit, you can start it manually in menu 7.7.

SETTING THE VENTILATION

The ventilation must be set according to applicable standards. The fan speed is set in menu 5.1.5 - "fan speed".

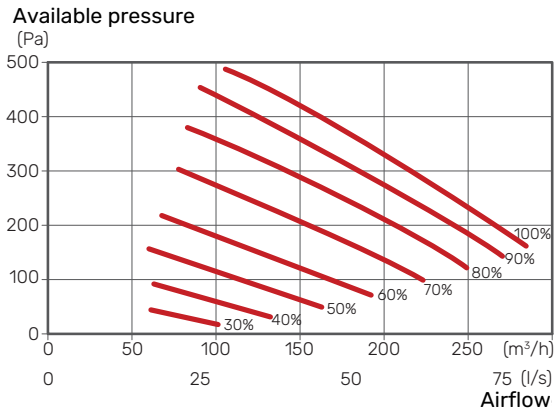
The ventilation must be set according to applicable standards. The fan speed is set in menu 7.1.4.1 - "Fan speed, exhaust air".

When connecting to another heat pump, set the ventilation with potentiometer (AA5-SF3).

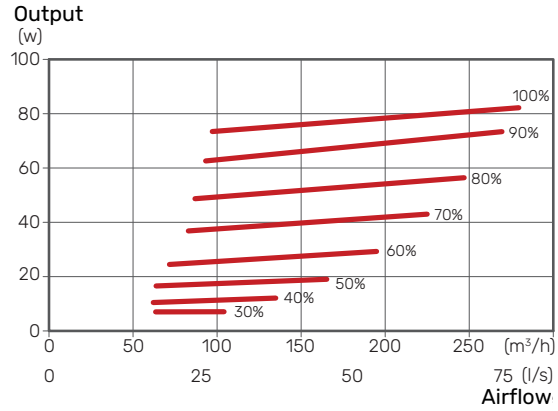
Even if ventilation is roughly set at installation it is important that a ventilation adjustment is ordered and permitted.

> **CAUTION!**
> Order a ventilation adjustment to complete the setting.

Fan capacity



Fan rating


Output
(w)
100
80
60
40
20
0
100%
90%
80%
70%
60%
50%
40%
30%
0
50
100
150
200
250
(m³/h)
0
25
50
75 (l/s)
Airflow

Activating S135

Activating S135 can be performed via the start guide or directly in the menu system.

The main product's software must be the latest version.

Start guide

The start guide appears upon first start-up after heat pump installation, but is also found in menu 7.7.

Menu system

If you do not make all settings via the start guide or need to change any of the settings, this can be done in the menu system.

MENU 7.2.1 - ADD/REMOVE ACCESSORIES

Here, you state which accessories are installed for the compatible product.

To identify connected accessories automatically, select "Search for accessories". It is also possible to select accessories manually from the list.

MENU 1.2.1 - FAN SPEED

Alternatives: normal and speed 1 – speed 4

The ventilation in the accommodation can be temporarily increased or reduced here.

When you have selected a new speed a clock starts a count down. When the time has counted down the ventilation speed returns to the normal setting.

If necessary, the different return times can be changed in menu 1.2.5.

The fan speed is shown in brackets (in percent) after each speed alternative.

MENU 1.2.2 - NIGHT COOLING

Night cooling
Alternative: on/off

Start temp exhaust air
Setting range: 20 – 30 °C

Min. diff. ind. temp. - outd. temp.
Setting range: 3 – 10 °C

Night cooling during heating
Alternative: on/off

Here, you can activate night cooling. When the temperature in the house is high, and the outdoor temperature is lower, a cooling effect can be obtained by forcing the ventilation.

Start temp exhaust air: Here, you set the exhaust air temperature at which night cooling will start.

Min. diff. ind. temp. - outd. temp.: If the temperature difference is greater than the set value for "Min. diff. ind. temp. - outd. temp.", and the exhaust air temperature is higher than the set value for "Start temp exhaust air", the ventilation operates at speed 4 until one of these conditions is no longer valid.

Night cooling during heating: It is possible to have night cooling during the time heating is permitted.

MENU 1.2.5 - FAN RETURN TIME

speed 1 – speed 4
Setting range: 1 – 24 h

Here, you select the return time for the temporary change of ventilation speed (speed 1 – speed 4), regardless of whether the speed has been changed in menu 1.2.1 - "Fan speed", via the home screen or via myUplink.

Return time is the time it takes before the temporary ventilation speed returns to normal speed.

MENU 1.2.6 - FILTER CLEANING INTERVAL

Months between filter cleaning
Setting range: 1 – 24 months

The air filter in S135 has to be cleaned regularly; how often depends, for example, on the quantity of particles in the ventilation air. Test, to find out what is most appropriate for your installation.

Set the interval for the reminder in this menu.

The menu shows the time remaining until the next reminder, and you can also reset active reminders.

MENU 7.2.13 - EXHAUST AIR MODULE (S135)

Charge pump speed
Setting range: 1 – 100 %

Hot water during cooling
Alternative: on/off

Here you can set the charge pump speed for S135. You can also choose to charge hot water with S135 at the same time as the outdoor section is producing cooling.

CAUTION!

Cooling is required to allow "hot water during cooling" to be activated.

NOTE!

For installations with F2040, cooling must be permitted in Menu 7.3.2.1 - Heat pump to allow "hot water during cooling" to be activated.

MENU 7.1.4.1 - FAN SPEED, EXHAUST AIR

Fan speed
Setting range: 0 – 100%

Set the speed for the five different selectable speeds for the fan here.

NOTE!

Also see the Installer Manual for the main product.

Disturbances in comfort

In most cases, the main product notes a malfunction (a malfunction can lead to disturbance in comfort) and indicates this with alarms and shows action instructions in the display.

Troubleshooting

If the operational interference is not shown in the display the following tips can be used:

BASIC ACTIONS

Start by checking the following items:

- That the feed cable is connected to S135.
- Group and main fuses of the accommodation.
- The property's earth circuit breaker.

LOW OR NO VENTILATION

- Filter (HQ12) blocked.
  - Clean or replace the filter.
- The ventilation is not adjusted.
  - Order/implement ventilation adjustment.
- Exhaust air device blocked or throttled down too much.
  - Check and clean the exhaust air devices.
- Fan speed in reduced mode.
  - Enter menu 1.2.1 - "Fan speed" and select "Normal"

HIGH OR DISTURBING VENTILATION

- Filter (HQ12) blocked.
  - Clean or replace the filter.
- The ventilation is not adjusted.
  - Order/implement ventilation adjustment.
- Fan speed in forced mode.
  - Enter menu 1.2.1 - "Fan speed" and select "Normal"

THE COMPRESSOR DOES NOT START

- There is no heating requirement.
  - The main unit does not call on heating.
- The heat pump defrosts.
  - The compressor starts, when defrosting is complete.

GURGLING SOUND

- Not enough water in the water seal.
  - Refill the water seal with water.
- Choked water seal.

Accessories

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

Top cabinet TOC 40

Top cabinet, which conceals any pipes/ventilation ducts.

HEIGHT 245 MM
Part no. 089 756
RSK no. 625 06 87

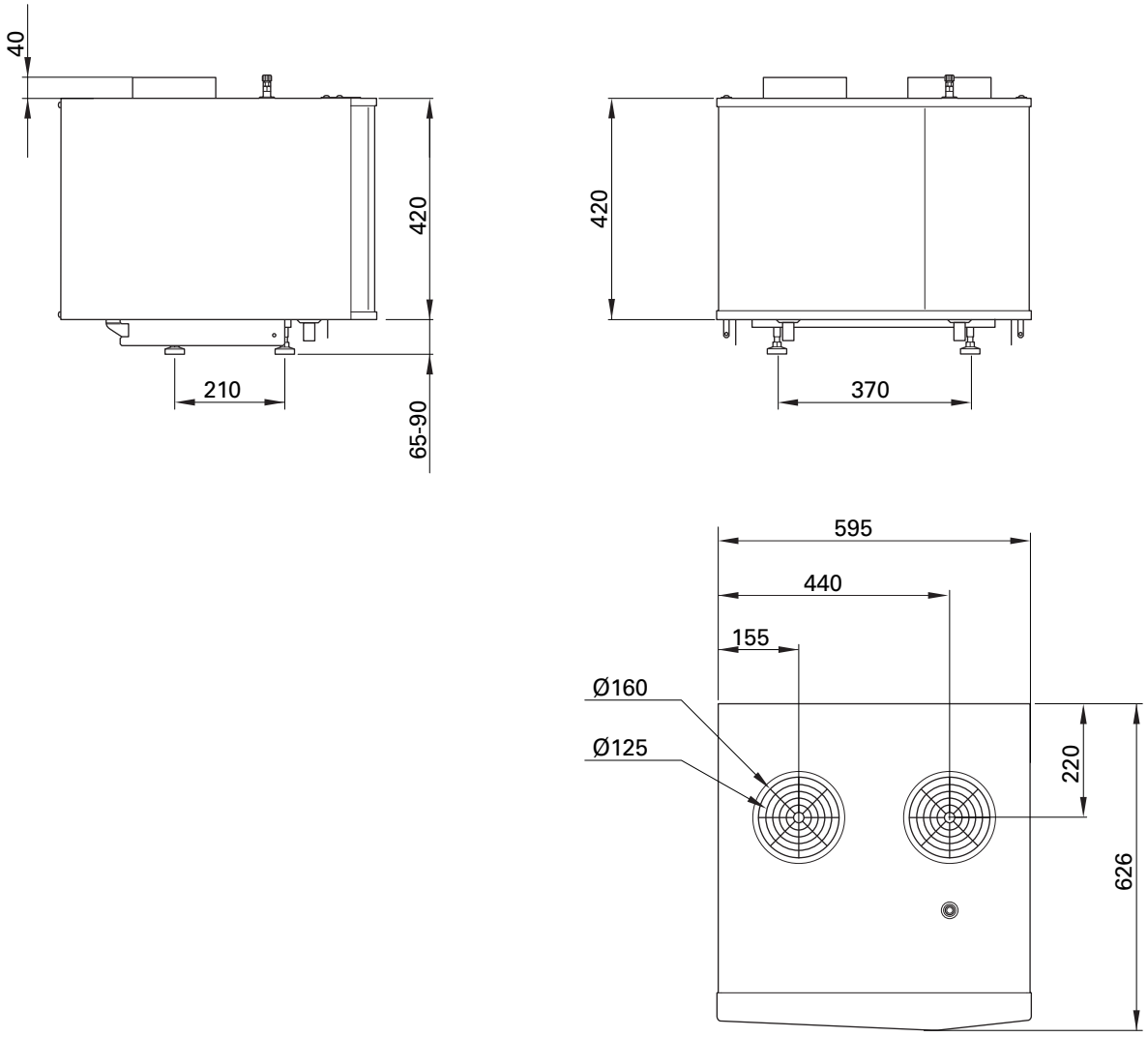
HEIGHT 345 MM
Part no. 089 757
RSK no. 625 06 88

HEIGHT 445 MM
Part no. 067 522
RSK no. 625 12 99

HEIGHT 385 - 635 MM
Part no. 089 758
RSK no. 625 06 89

Technical data

Dimensions



Technical specifications

1x230 V		-
Output data according to EN 14 511		
Capacity (P_H)/COP	kW/-	1.42 / 3.87[1]
Capacity (P_H)/COP	kW/-	1.34 / 3.13[2]
Capacity (P_H)/COP	kW/-	1.27 / 2.65[3]
Electrical data		
Rated voltage	V	230 V ~ 50 Hz
Max operating current	A	3.5
Min. fuse rating	A	6
Driving power circulation pump	W	5-20
Driving power fan	W	20-75
Enclosure class		IP21
Ventilation		
Filter type, exhaust air filter		Coarse 65%
Refrigerant circuit		
Type of refrigerant		R134A
GWP refrigerant		1430
Volume	kg	0.38
CO_2 equivalent	ton	0.54
Cut-out value pressostat HP	MPa/bar	2.2 / 22.0
Exhaust air module		
Max system pressure	MPa/bar	1.0 / 10.0
Max temperature, supply line	°C	63
Max temperature, return line	°C	54
Air flow requirement		
Min. airflow with the temperature of the incoming air at least 10 °C	l/s	25
Temperature range for compressor operation	°C	10 - 37
Sound effect level according to EN 12 102		
Sound power level ($L_{W(A)}$)[4]	dB(A)	47.0
Sound pressure levels according to EN ISO 11 203		
Sound pressure level in the installation room ($L_{P(A)}$)[5]	dB(A)	43.0
Pipe connections		
Heating medium ext ⌀	mm	22
Ventilation ext ⌀	mm	160
Filter box ext. ⌀	mm	160/125

1 A20(12)W35, frånluftsflöde 50 l/s (180 m³/h), exkl. driveffekt för fläkt

2 A20(12)W45, frånluftsflöde 50 l/s (180 m³/h), exkl. driveffekt för fläkt

3 A20(12)W55, frånluftsflöde 50 l/s (180 m³/h), exkl. driveffekt för fläkt

4 The value varies with the fan speed selected. For more detailed sound data, including sound to ducts, visit nibe.eu.

5 The value can vary with the room's damping capacity. These values apply at a damping of 4 dB.

Other 1x230 V		
Dimensions and weight		
Length, supply cable	m	2.8
Width	mm	600
Depth	mm	626
Height		490 - 515
Weight	kg	50
RSK No.		624 45 25
Part No.		066 161

Energy labelling

INFORMATION SHEET

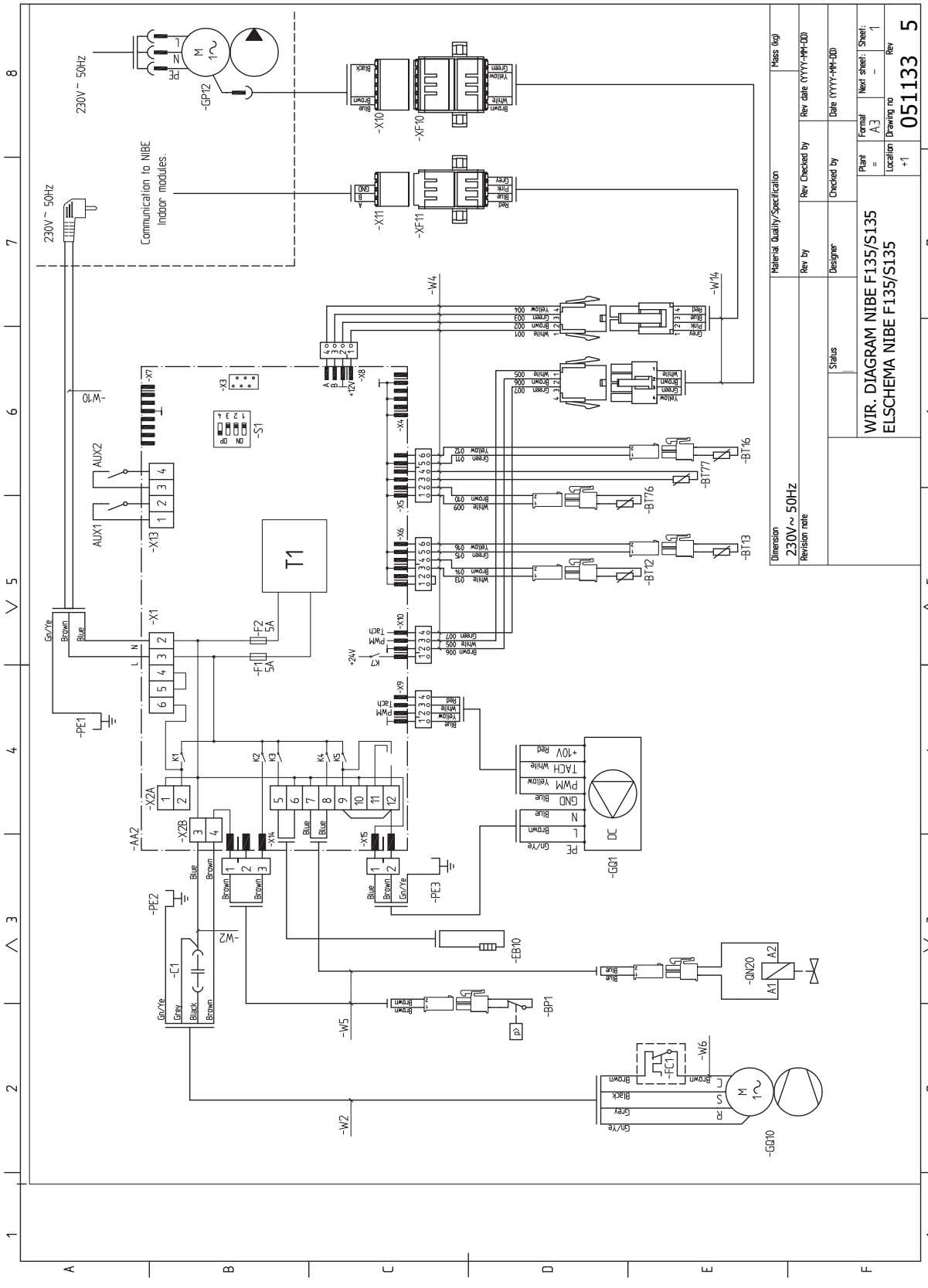
Supplier		NIBE
Model		**S135**
Temperature application	°C	35 / 55
Seasonal space heating energy efficiency class, average climate		A+ / A+
Rated heat output ($P_{designh}$), average climate	kW	2
Annual energy consumption space heating, average climate	kWh	879 / 1087
Seasonal space heating energy efficiency, average climate	%	141 / 114
Sound power level L_{WA} indoors	dB	47
Rated heat output ($P_{designh}$), cold climate	kW	2
Rated heat output ($P_{designh}$), warm climate	kW	2
Annual energy consumption space heating, cold climate	kWh	1004 / 1264
Annual energy consumption space heating, warm climate	kWh	587 / 731
Seasonal space heating energy efficiency, cold climate	%	147 / 117
Seasonal space heating energy efficiency, warm climate	%	136 / 110
Sound power level L_{WA} outdoors	dB	-

Compressor motor is exempted from EU 2019/1781 due to that motors completely integrated into compressor and energy performance cannot be tested independently from the product.

TECHNICAL DOCUMENTATION

Model		S135					
Type of heat pump		☐ Air-water ☒ Exhaust-water ☐ Brine-water ☐ Water-water					
Low-temperature heat pump		☐ Yes ☒ No					
Integrated immersion heater for additional heat		☐ Yes ☒ No					
Heat pump combination heater		☐ Yes ☒ No					
Climate		☒ Average ☐ Cold ☐ Warm					
Temperature application		☒ Medium (55°C) ☐ Low (35°C)					
Applied standards		EN14825 EN16147					
Rated heat output	Prated	1,5	kW	*Seasonal space heating energy efficiency*	η_s	114	%
Declared capacity for space heating at part load and at outdoor temperature Tj				*Declared coefficient of performance for space heating at part load and at outdoor temperature Tj*			
Tj = -7 °C	Pdh	1.3	kW	Tj = -7 °C	COPd	3.0	-
Tj = +2 °C	Pdh	1.3	kW	Tj = +2 °C	COPd	3.1	-
Tj = +7 °C	Pdh	1.3	kW	Tj = +7 °C	COPd	3.3	-
Tj = +12 °C	Pdh	1.4	kW	Tj = +12 °C	COPd	3.3	-
Tj = biv	Pdh	1.2	kW	Tj = biv	COPd	2.7	-
Tj = TOL	Pdh	1.2	kW	Tj = TOL	COPd	2.8	-
Tj = -15 °C (if TOL < -20 °C)	Pdh		kW	Tj = -15 °C (if TOL < -20 °C)	COPd		-
Bivalent temperature	T_{biv}	-6.9	°C	Min. outdoor air temperature	TOL	-10	°C
Cycling interval capacity	Pcych		kW	Cycling interval efficiency	COPcyc		-
Degradation coefficient	Cdh	0.98	-	Max supply temperature	WTOL	58	°C
Power consumption in modes other than active mode				*Additional heat*			
Off mode	P_{OFF}	0.003	kW	Rated heat output	Psup	0.3	kW
Thermostat-off mode	P_{TO}	0.01	kW				
Standby mode	P_{SB}	0.005	kW	Type of energy input	Electric		
Crankcase heater mode	P_{CK}	0.01	kW				
Other items							
Capacity control	Fixed			Rated airflow (air-water)		150	m³/h
Sound power level, indoors/outdoors	L_{WA}	47 / -	dB	Nominal heating medium flow		0.13	m³/h
Annual energy consumption	Q_{HE}	1,087	kWh	Brine flow brine-water or water-water heat pumps			m³/h
Contact information	*NIBE Energy Systems – Box 14 – Hannabadsvägen 5 – 285 21 Markaryd – Sweden*						

ELECTRICAL CIRCUIT DIAGRAM



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