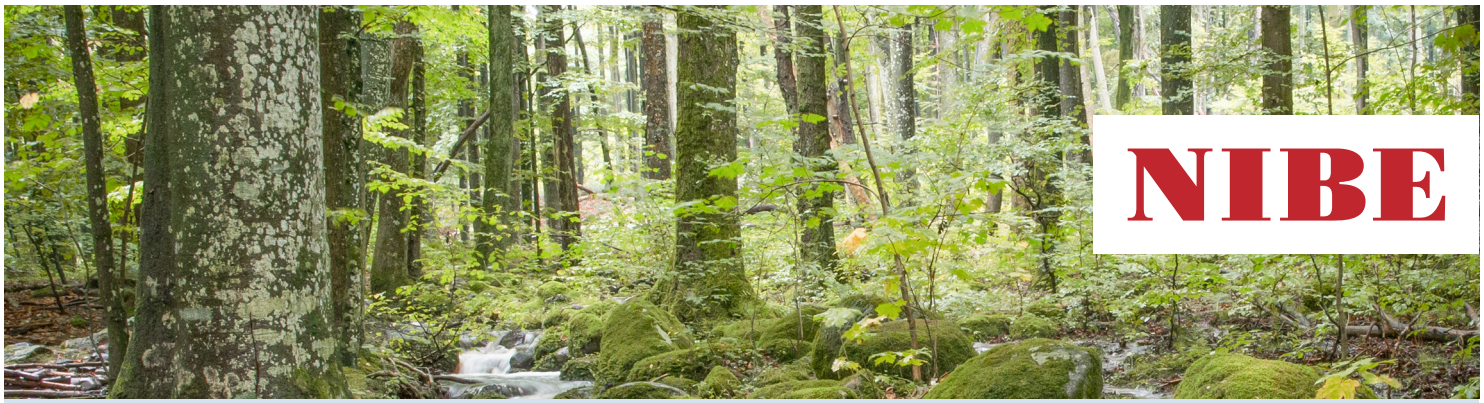


Exhaust air module
NIBE F135

The NIBE F135 is an exhaust air heat pump module designed for use with NIBE air/water heat pump systems. It is controlled by VVM 310 / VVM 320 / VVM 500 or SMO 40.

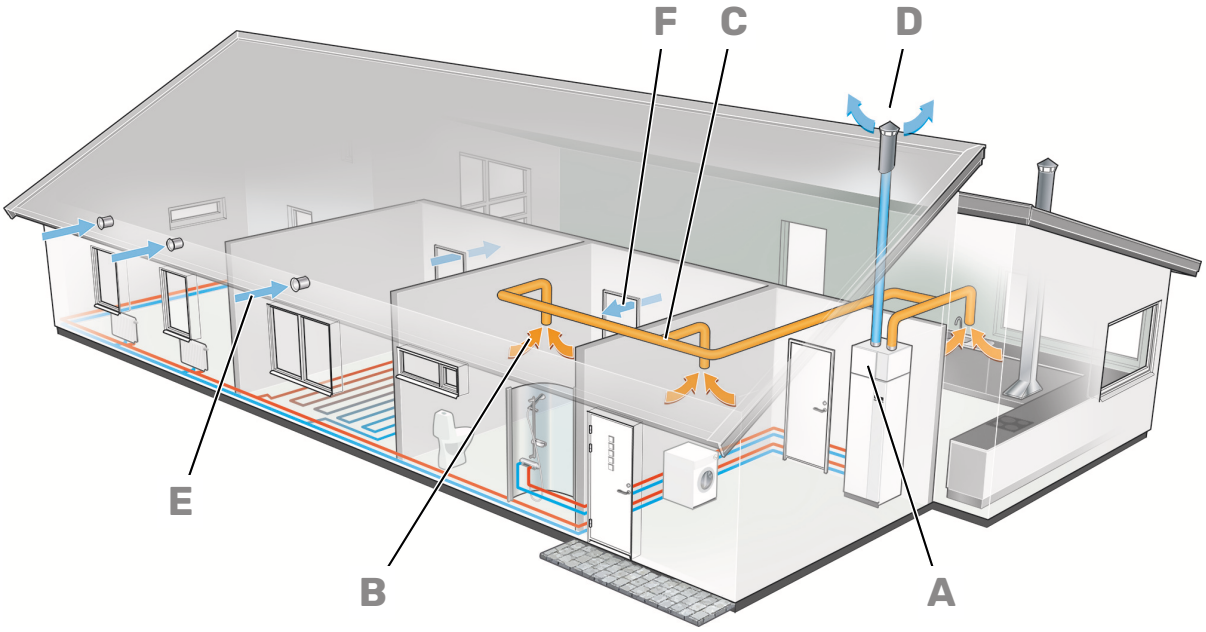
The exhaust air module recycles energy from mechanical exhaust air and improves the indoor climate, at the same time as reducing heating and hot water costs

When combined with a NIBE heat pump, it gives you control over your energy consumption and will be a key part of your connected home. You will do the environment a favor while maintaining all the comfort in your home.

- **Combines recovery of mechanical exhaust air with air/water heat pump.**
- **Boosts your system SCOP.**
- **Produces domestic hot water simultaneous as the air/water heat pump cools your home.**

This is how F135 works

Principle



F135 is an exhaust air module with an integrated DC fan intended to be docked with the appropriate NIBE indoor module (VVM) or control module (SMO 40).

Energy is recovered from the ventilation air and supplied to the heat pump, which significantly reduces the energy costs. The device ventilates the house, supplies heat and produces domestic hot water.

F135 is intended for low-temperature dimensioned radiator circuits and/or underfloor heating. F135 is suitable in houses or equivalent, both in new-builds and as a replacement.

A F135 ventilates the house.

B The warm room air is drawn into the air duct system.

C The warm room air is fed to F135.

D The air is released when it has passed F135. The air temperature has then dropped since F135 has extracted the energy in the air.

E Outdoor air is drawn into the house.

F Air is diverted from rooms with outdoor air devices to rooms with exhaust air valves.

Design

Control of F135 is performed from the indoor module's display unit. This provides easy operation while always enabling the exhaust air module to be used as efficiently as possible, because the indoor module' display unit continuously determines the best method of operation. The indoor module's display unit shows the current temperatures and set values in plain text.

The design of the air treatment section delivers a high ventilation capacity. In addition, the speed of the continuously adjustable fan can easily be increased or reduced via the indoor module's display.

The outer casing is of white powder-coated steel plate. The front door is easy to remove for easy access when installing and for servicing.

Principle of operation, cooling circuit

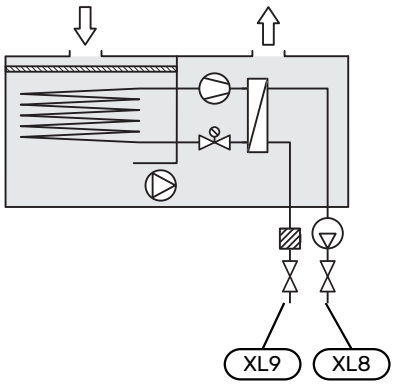
When the air passes through the evaporator, the refrigerant evaporates because of its low boiling point. In this way the energy in the air is transferred to the refrigerant.

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

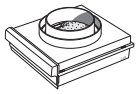
Good to know about F135

Transport and storage

F135 should be transported and stored vertically in a dry place.

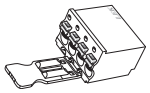
Supplied components

Silencer

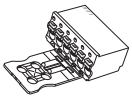


Filter cartridge

Choke washer Ø 22 mm[1]



4-pin connector



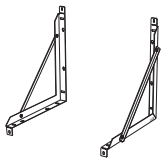
6-pin connector

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

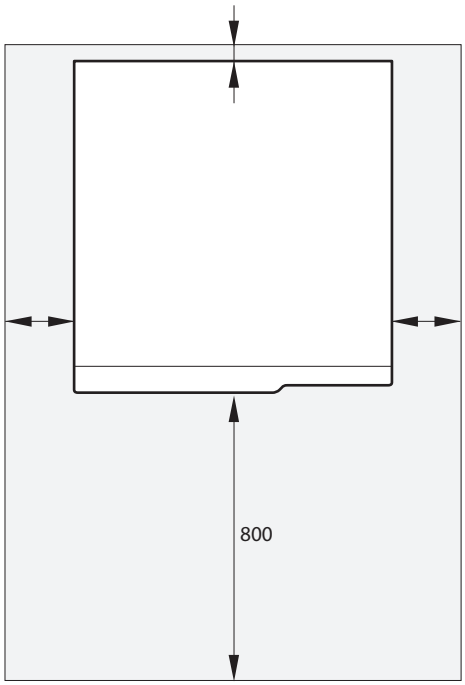
The kit of supplied items is placed on top of the product.

Installation and positioning

- F135 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 F135 is placed.
- Since water comes from F135, the area where F135 is located must be equipped with floor drainage.
- Because water comes from F135, 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.
- 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 F135 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.



Ensure that there is sufficient space (300 mm) above F135 for connecting ventilation ducts.

SOUND POWER LEVEL

For more detailed sound data, including sound to channels, visit nibe.se.

Installation

Pipe installation

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

Pipe connections for cold and hot water as well as supply and return lines are fitted with 22 mm compression ring couplings.

General ventilation connections

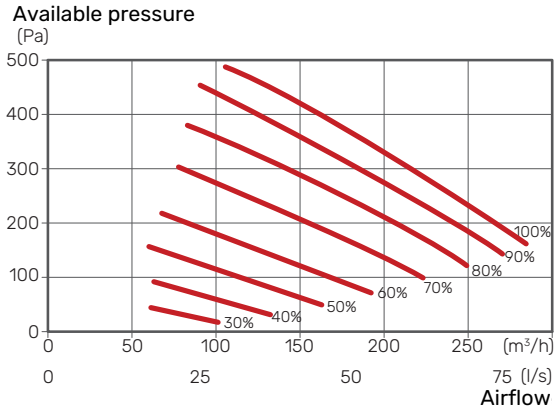
Connect F135 so that all the exhaust air, except kitchen duct air (kitchen fan), passes through the evaporator in the exhaust air module.

-
- 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.
- Provision must be made for inspection and cleaning of the duct.
- 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.
- For installation with ambient air, the enclosed silencer has to be fitted in F135.
- Ducts that may become cold have to be insulated with diffusion-proof material along their entire length.
- Exhaust air ducts that are routed in cold areas must be insulated.
- All joins in the ducting must be sealed to prevent leakage.
- A duct in a masonry chimney stack must not be used for extract air.
- If a stove or similar is installed, it must have airtight doors. It must also be able to take combustion air from outside.
- 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.

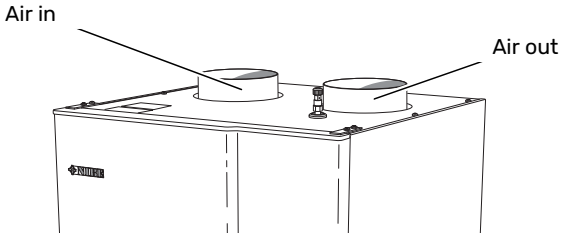
SETTING THE FAN CAPACITY

Select the ventilation capacity steplessly in the display.

Fan capacity



VENTILATION CONNECTIONS



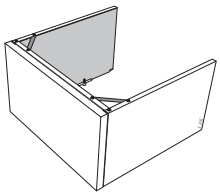
Accessories

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

Not all accessories are available on all markets.

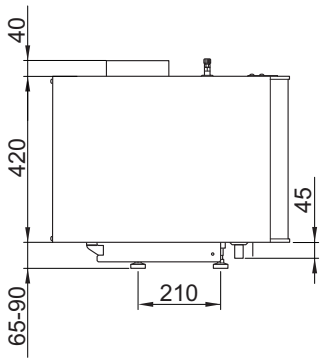
TOP CABINET TOC 40

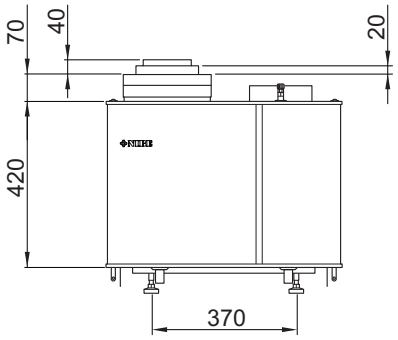
Top cabinet, which conceals any pipes/ventilation ducts.

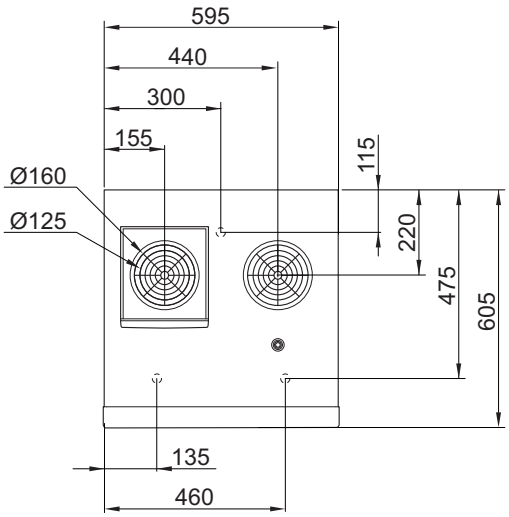


Technical data

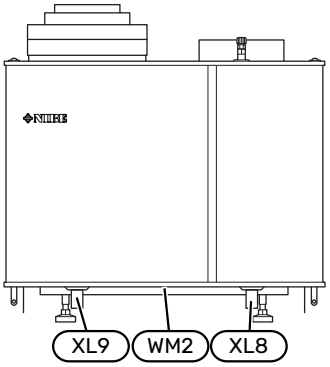
Dimensions







Pipe connections



PIPE DIMENSIONS

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

Technical specifications

Type		Exhaust air
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]
Energy rating, average climate		
The product's efficiency class room heating, average climate 35 / 55 °C[4]		A+ / A+
The system's efficiency class room heating, average climate 35 / 55 °C[5]		A+ / A+
Electrical data		
Rated voltage	V	230 V ~ 50 Hz
Max operating current	A	3.5
Min. fuse rating	A	6
Enclosure class		IP21
Ventilation		
Filter type, exhaust air filter		Coarse 65%
Refrigerant circuit		
Type of refrigerant		R134A
GWP refrigerant		1430
Filling amount	kg	0.38
CO_2 equivalent	ton	0.54
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
Noise		
Sound effect level according to EN 12 102 ($L_{W(A)}$)[6]	dB(A)	47.0
Sound pressure level in the installation area according to EN ISO 11 203 ($L_{P(A)}$)[7]	dB(A)	43.0
Miscellaneous		
Weight	kg	50
Part No.		066 009

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 Scale for the product's efficiency class room heating: A++ to G.

5 Scale for the system's efficiency class room heating: A+++ to G. Reported efficiency for the system takes the product's temperature regulator into account.

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

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

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

PBD EN 2451-3 M12321