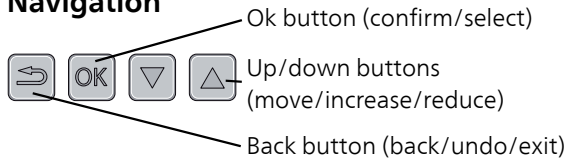


Installer manual  
**NIBE™ F110**  
Heat pump

IHB GB 1540-5  
231974

## Quick guide

### Navigation



A detailed explanation of the button functions can be found on page 22.

How to scroll through menus and make different settings is described on page 23.

### Increase hot water volume



To temporarily increase the amount of hot water, first press the down button to mark menu 2 (water droplet) and then press the OK button twice. Read more about the settings on page 26.

### In event of disturbances in comfort

If a disturbance in comfort of any type occurs there are some measures that can be taken before you need to contact your installer. See page 35 for instructions.

# Table of Contents

<b>1 Important information</b> _____	<b>2</b>	<b>7 Control - Introduction</b> _____	<b>22</b>
Safety information _____	2	Display unit _____	22
		Menu system _____	22
<b>2 Delivery and handling</b> _____	<b>5</b>	<b>8 Control - Menus</b> _____	<b>25</b>
Transport _____	5	Menu 1 - ventilation _____	25
Assembly _____	5	Menu 2 - HOT WATER _____	26
Supplied components _____	7	Menu 3 - INFO _____	28
Removing the covers _____	8	Menu 4 - MY SYSTEM _____	29
		Menu 5 - SERVICE _____	31
<b>3 The Heat pump design</b> _____	<b>10</b>	<b>9 Service</b> _____	<b>33</b>
		Service actions _____	33
<b>4 Pipe and air connections</b> _____	<b>12</b>	<b>10 Disturbances in comfort</b> _____	<b>34</b>
General pipe connections _____	12	Info menu _____	34
Dimensions and pipe connections _____	13	Manage alarm _____	34
Connecting cold and hot water _____	13	Troubleshooting _____	35
Installation alternative _____	14	<b>11 Accessories</b> _____	<b>36</b>
General air connections _____	16	<b>12 Technical data</b> _____	<b>37</b>
Exhaust air duct /kitchen fan _____	17	Dimensions and setting-out coordinates _____	37
Ventilation flow (exhaust air) _____	17	Technical specifications _____	38
Adjusting ventilation (exhaust air) _____	17	Energy labelling _____	41
		Electrical circuit diagram _____	42
<b>5 Electrical connections</b> _____	<b>18</b>	<b>Index</b> _____	<b>43</b>
General _____	18		
Connections _____	18		
Optional connections _____	19		
<b>6 Commissioning and adjusting</b> _____	<b>20</b>		
Preparations _____	20		
Filling and venting _____	20		
Start-up and inspection _____	20		

# 1 Important information

## Safety information

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

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.

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## Symbols



### NOTE

This symbol indicates danger to machine or person.



### Caution

This symbol indicates important information about what you should observe when maintaining your installation.



### TIP

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

## Marking

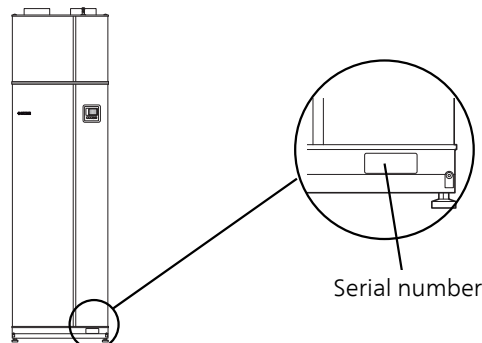
F110 is CE marked and fulfils IP21.

The CE marking means that NIBE ensures that the product meets all regulations that are placed on it based on relevant EU directives. The CE mark is obligatory for most products sold in the EU, regardless where they are made.

IP21 means that objects with a diameter larger than or equivalent to 12.5 mm cannot penetrate and cause damage and that the product is protected against vertically falling drops of water.

## Serial number

The serial number can be found at the bottom right of the front cover.



### Caution

Always give the product's serial number (14 digits) when reporting a fault.

## Country specific information

### Installer manual

This installer manual must be left with the customer.

## 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 14)			
	Setting the ventilation flow			
	Exhaust air filter			
	Ventilation, surrounding air or outdoor air (page 15)			
	Pressure drop in the system			
	Hot water			
	System vented			
	Electricity (page 18)			
	Supply connected 230 V			
	Circuit fuses			
	Earth circuit-breaker			
	Miscellaneous			
	Type of installation			

## Contact information

- AT KNV Energietechnik GmbH**, Gahberggasse 11, 4861 Schörfling  
Tel: +43 (0)7662 8963-0 Fax: +43 (0)7662 8963-44 E-mail: mail@knv.at www.knv.at
- CH NIBE Wärmetechnik c/o ait Schweiz AG**, Industriepark, CH-6246 Altishofen  
Tel: (52) 647 00 30 Fax: (52) 647 00 31 E-mail: info@nibe.ch www.nibe.ch
- CZ Druzstevni zavody Drazice s.r.o.**, Drazice 69, CZ - 294 71 Benatky nad Jizerou  
Tel: +420 326 373 801 Fax: +420 326 373 803 E-mail: nibe@nibe.cz www.nibe.cz
- DE NIBE Systemtechnik GmbH**, Am Reiherpfahl 3, 29223 Celle  
Tel: 05141/7546-0 Fax: 05141/7546-99 E-mail: info@nibe.de www.nibe.de
- DK Vølund Varmeteknik A/S**, Member of the Nibe Group, Brogårdsvej 7, 6920 Videbæk  
Tel: 97 17 20 33 Fax: 97 17 29 33 E-mail: info@volundvt.dk www.volundvt.dk
- FI NIBE Energy Systems OY**, Juurakkotie 3, 01510 Vantaa  
Puh: 09-274 697 0 Fax: 09-274 697 40 E-mail: info@nibe.fi www.nibe.fi
- FR NIBE Energy Systems France Sarl**, Zone industrielle RD 28, Rue du Pou du Ciel, 01600 Reyrieux  
Tel : 04 74 00 92 92 Fax : 04 74 00 42 00 E-mail: info@nibe.fr www.nibe.fr
- GB NIBE Energy Systems Ltd**, 3C Broom Business Park, Bridge Way, Chesterfield S41 9QG  
Tel: 0845 095 1200 Fax: 0845 095 1201 E-mail: info@nibe.co.uk www.nibe.co.uk
- NL NIBE Energietechnik B.V.**, Postbus 634, NL 4900 AP Oosterhout  
Tel: 0168 477722 Fax: 0168 476998 E-mail: info@nibenl.nl www.nibenl.nl
- NO ABK AS**, Brobekkveien 80, 0582 Oslo, Postadresse: Postboks 64 Vollebakk, 0516 Oslo  
Tel. sentralbord: +47 23 17 05 20 E-mail: post@abkklima.no www.nibeenergysystems.no
- PL NIBE-BIAWAR Sp. z o. o.** Aleja Jana Pawła II 57, 15-703 BIAŁYSTOK  
Tel: 085 662 84 90 Fax: 085 662 84 14 E-mail: sekretariat@biawar.com.pl www.biawar.com.pl
- RU © "EVAN" 17**, per. Boynovskiy, Nizhny Novgorod  
Tel./fax +7 831 419 57 06 E-mail: info@evan.ru www.nibe-ivan.ru
- SE NIBE AB Sweden**, Box 14, Hannabadsvägen 5, SE-285 21 Markaryd  
Tel: +46-(0)433-73 000 Fax: +46-(0)433-73 190 E-mail: info@nibe.se www.nibe.se

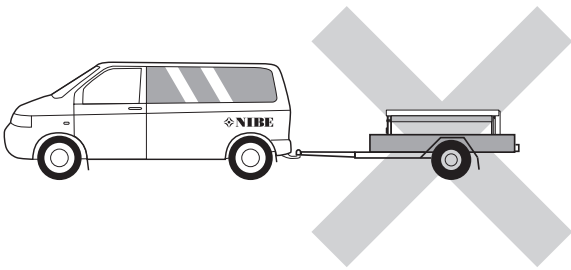
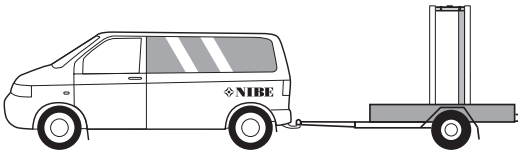
For countries not mention in this list, please contact Nibe Sweden or check [www.nibe.eu](http://www.nibe.eu) for more information.

# 2 Delivery and handling

## Transport

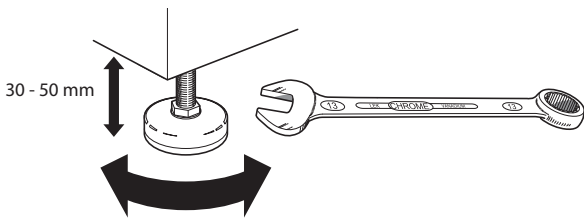
### Transport

F110 should be transported and stored vertically in a dry place. However, the F110 may be carefully laid on its back when being moved into a building. The centre of gravity is in the upper part.



## Assembly

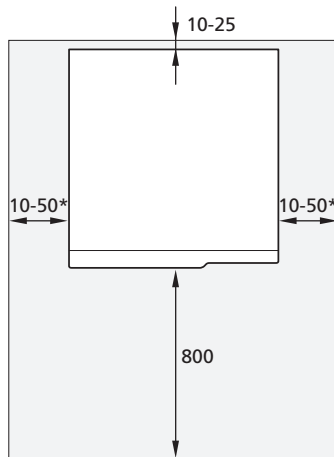
- Position F110 on a firm base that can take the weight, preferably on a concrete floor or foundation. Use the product's adjustable feet to obtain a horizontal and stable set-up.



- The area where F110 is located must be equipped with floor drainage.
- F110 must be positioned with the back towards a wall. Install F110 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.

## Installation area

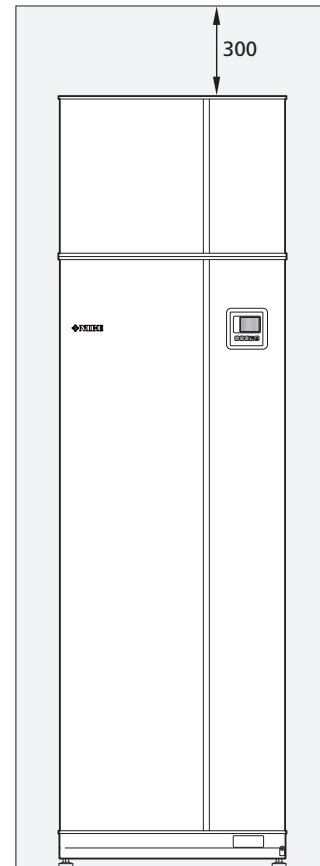
Leave a free space of 800 mm in front of the heat pump. Approx. 50 mm free space is required on each side, to remove the side panels. The panels do not need to be removed during service, all service can be carried out from the front. Leave space between the heat pump and the wall behind (and any routing of supply cables and pipes) to reduce the risk of any vibration being propagated.



\* Depending on whether the panels can be removed or not.

## NOTE

Ensure that there is sufficient space (300 mm) above F110 for installing ventilation hoses.

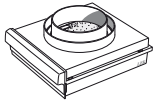




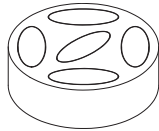
## Supplied components

### Location

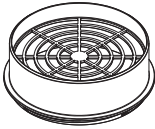
The kit of supplied items is placed in the lower section of the product.



Filter cartridge



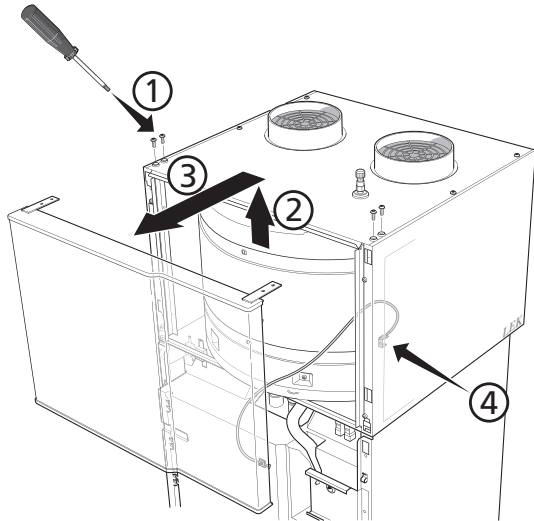
Silencer



Air connection

## Removing the covers

### Air treatment hatch



1. Slacken off the screws for the securing plate above F110.
2. Slide the hatch upwards and pull it towards you.
3. Pull the hatch towards yourself.

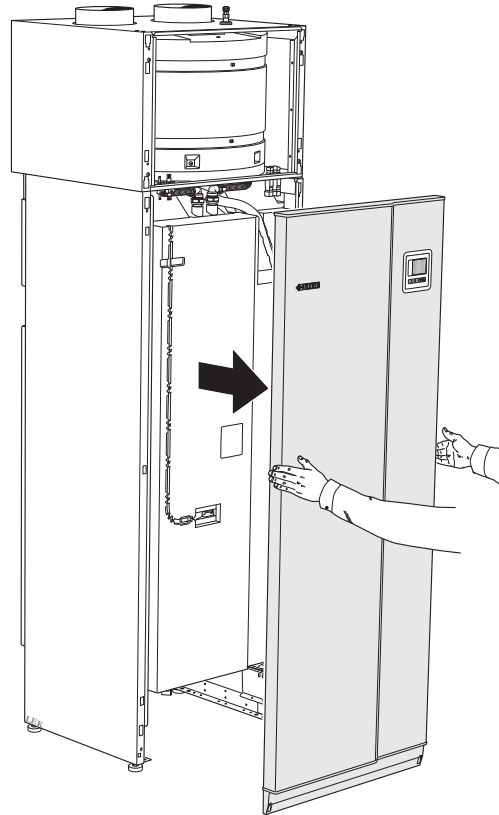


#### NOTE

A ground cable is installed in the hatch, it can therefore only be lifted out 0.35 m. If the hatch needs to be removed completely, the cable must be detached.

### Front cover

Remove the front hatch by pulling it straight out.



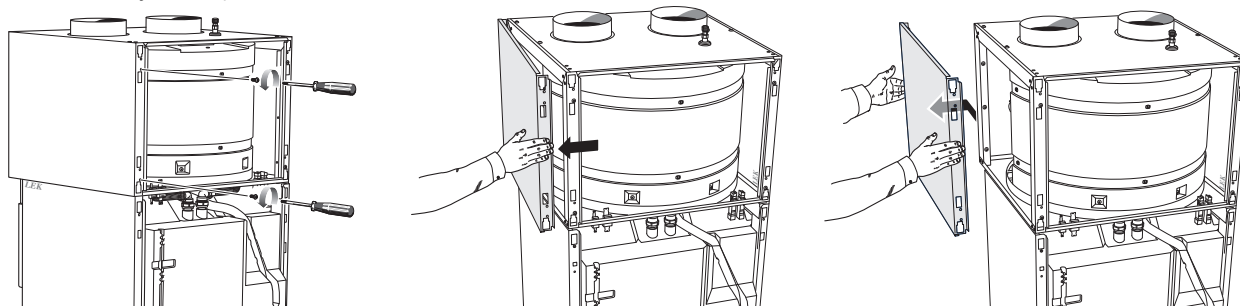
#### NOTE

A display cable is installed in the hatch, it can therefore only be lifted out 1.5 m. If the hatch needs to be removed completely, the cable must be detached.

## Side panels

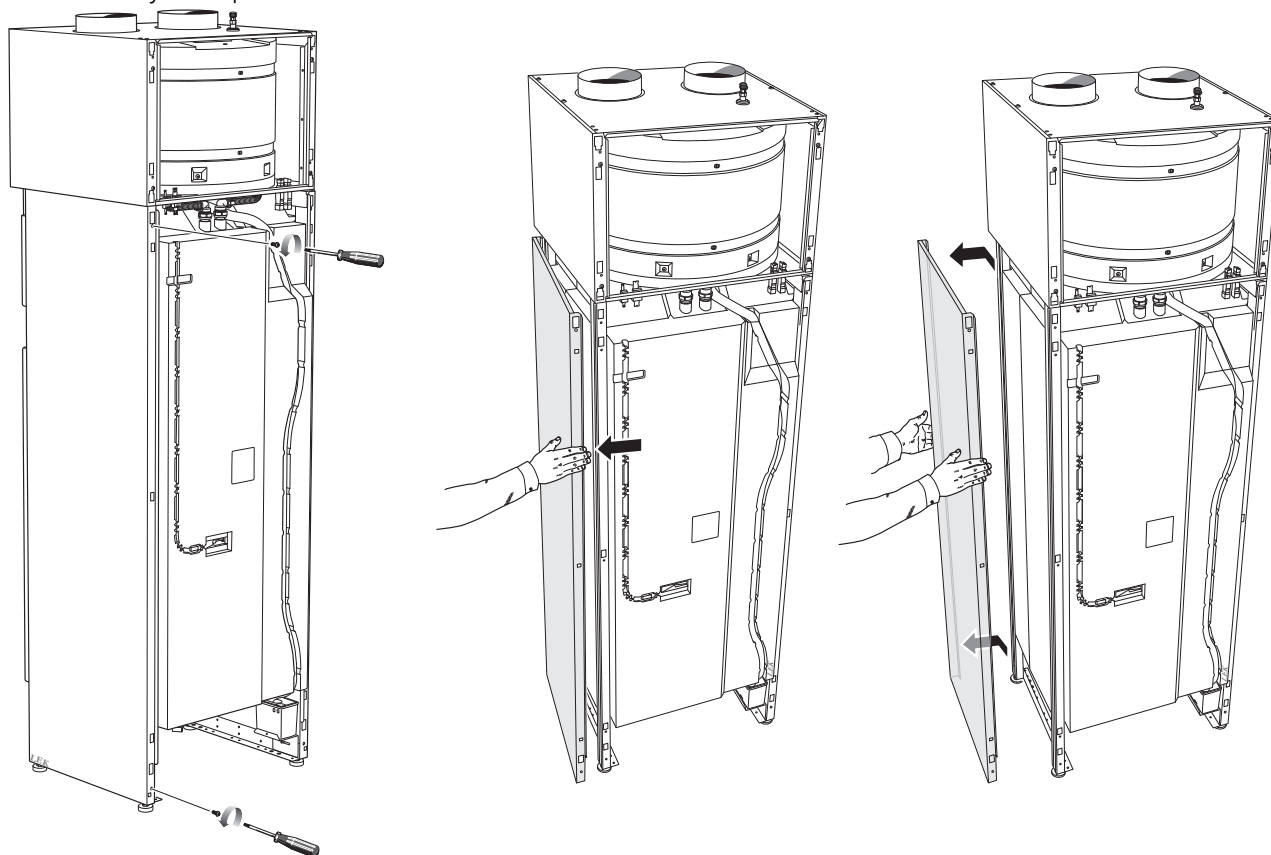
### *Air treatment section*

1. Undo the screws at the edge.
2. Twist the cover slightly outward.
3. Move the side cover outwards and backwards.
4. Assembly takes place in the reverse order.

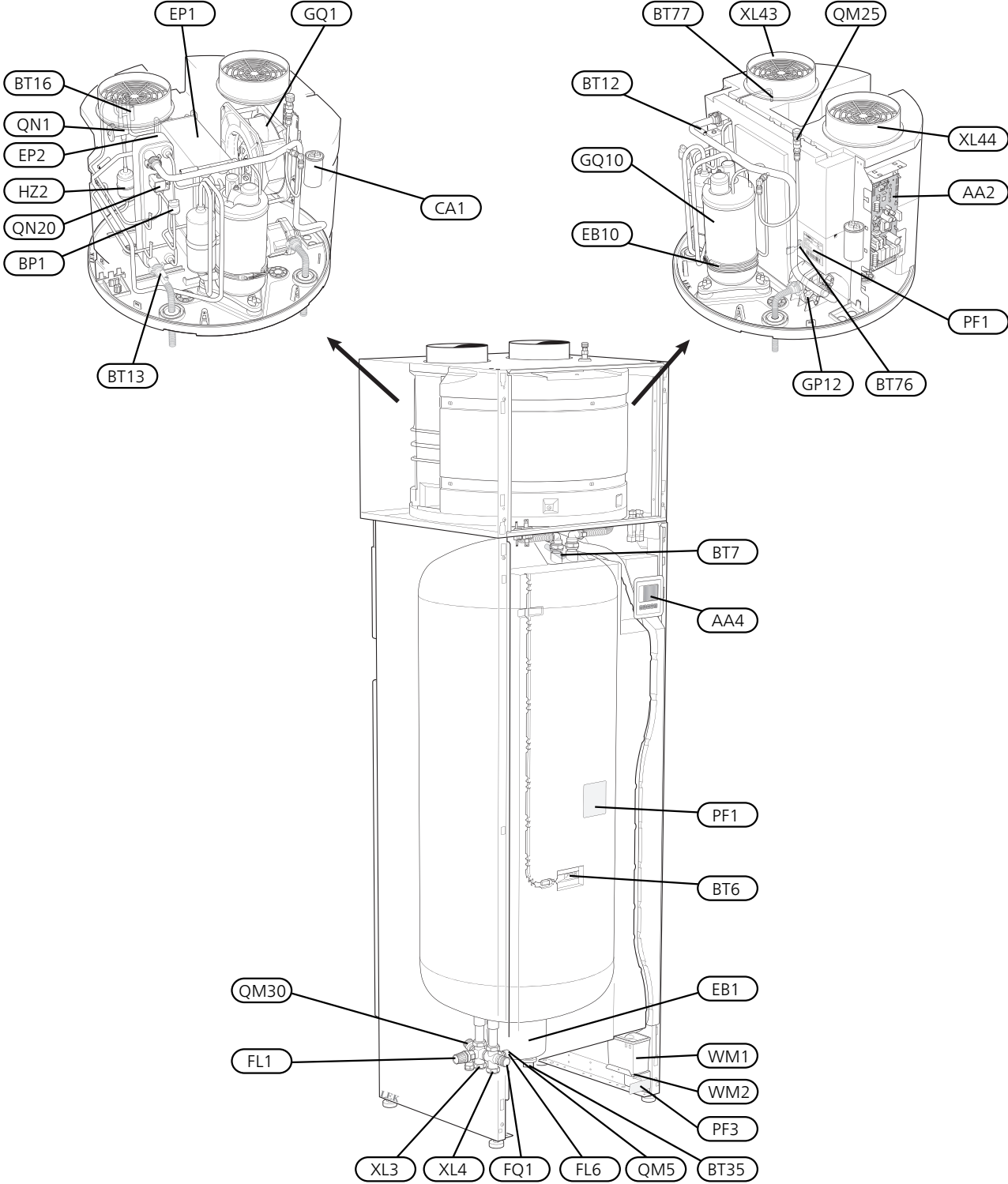


### *Heater section*

1. Undo the screws at the edge.
2. Twist the cover slightly outward.
3. Move the side cover outwards and backwards.
4. Assembly takes place in the reverse order.



# 3 The Heat pump design



### Pipe connections

XL 3	Connection, cold water
XL 4	Connection, hot water
XL43	Connecting incoming air
XL44	Connecting outgoing air
WM2	Overflow water discharge <sup>1</sup>

### HVAC components

FL 1	Safety valve, water heater
FL 6	Vacuum valve (only F110 Cu)
FQ 1	Mixer valve, hot water
GP12	Circulation pump, charging
QM 5	Vent screw (only F110 R)
QM25	Venting, hot water
QM 30	Shut-off valve, hot water
WM 1	Tundish
WM 2	Overflow water discharge

### Sensors etc.

BP1	High pressure pressostat
BT 6	Temperature sensor, hot water, control
BT 7	Temperature sensor, hot water, display
BT12	Temperature sensor, condenser out
BT13	Temperature sensor, heating medium return before condenser
BT16	Temperature sensor, evaporator
BT 35	Thermostat
BT76	Temperature sensor, defrosting
BT77	Temperature sensor, incoming air

### Electrical components

AA2	Base card
AA 4	Display unit
CA1	Capacitor
EB 1	Immersion heater
EB10	Compressor heater
FD 1	Temperature limiter <sup>1</sup>

### Cooling components

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

### Ventilation

GQ1	Fan
HQ12	Air filter <sup>1</sup>

### Miscellaneous

PF1	Rating plate
PF3	Serial number plate

<sup>1</sup>Not visible in the image

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

# 4 Pipe and air connections

## General pipe connections

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

F110 is only designed for be installed vertically. The water heater is equipped with compression ring couplings for copper or plastic pipes. Internal support bushes must be fitted when a plastic pipe or annealed copper pipe is used. The mixer valve is set for the desired hot water temperature. Turn the mixer knob anticlockwise to increase hot water temperature. Setting range 40–65 °C.

Overflow water from the evaporator collection tray and safety valves goes via non-pressurised collecting pipes to a drain so that hot water splashes cannot cause injury. The entire length of the overflow water pipe must be inclined to prevent water pockets and must also be frost proof.

The safety valve (FL1) must be checked regularly, about four times a year.








1. Turn the safety valve anticlockwise.
2. Check that water flows through the safety valve overflow pipe.
3. If no water comes out, contact the installer to replace the safety valve immediately.

The safety valve sometimes releases a little water after hot water has been used. This discharge is caused by the expansion of cold water entering the water heater, resulting in a pressure increase, whereby the safety valve opens.

**NOTE**

The pipe systems need to be flushed out before F110 is connected so that any debris cannot damage component parts.

### Symbol key

Symbol	Meaning
	Shut-off valve
	Immersion heater
	Safety valve
	Circulation pump
	Fan
	Compressor
	Heat exchanger

## System diagram

F110 consists of heat pump module, water heater, immersion heater and control system.

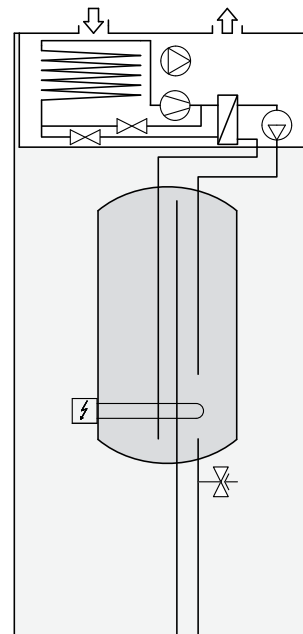
When the air passes through the evaporator, the refrigerant evaporates because of its low boiling point. In this way the energy in the air is transferred to the refrigerant.

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

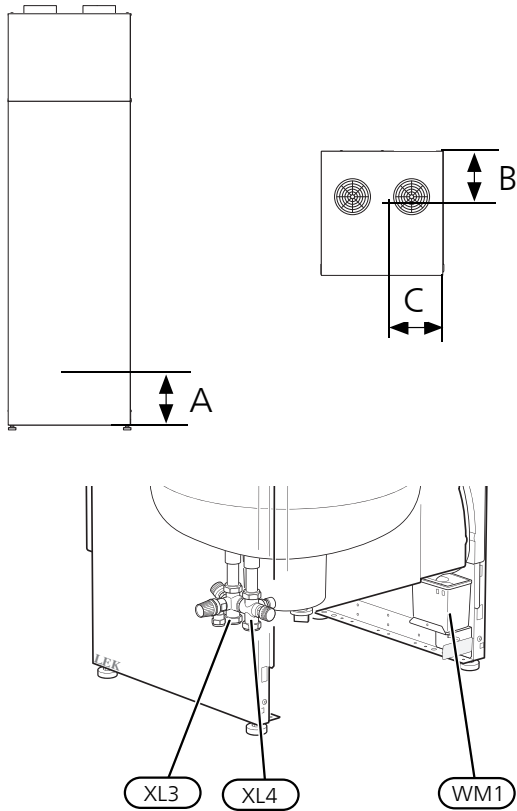
The warm refrigerant is led to the condenser. Here the refrigerant gives off its energy to the hot water, whereupon the refrigerant changes state from gas to liquid.

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.

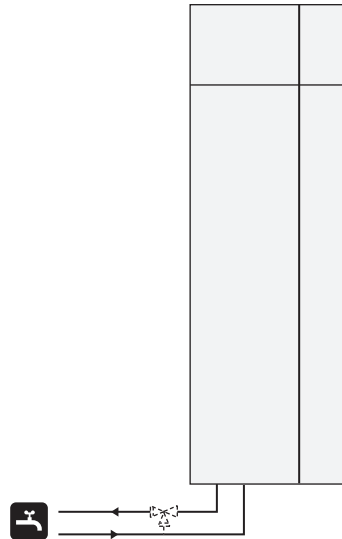


## Dimensions and pipe connections



## Connecting cold and hot water

The valve connector must not be used for external installation, relocation or separation.



### Setting out dimensions

Connection		A	B	C
XL3 Cold water	(mm)	125	295	435
XL4 Hot water	(mm)	125	350	435
WM1 Drip tray	(mm)	140	450	68

### Pipe dimensions

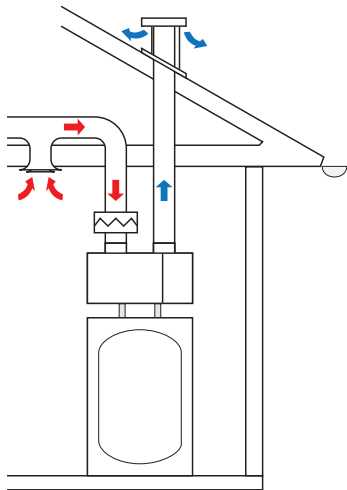
Connection		
XL3 Cold water ext Ø	(mm)	22
XL4 Hot water ext Ø	(mm)	22
WM2 Overflow water discharge	(mm)	32

## Installation alternative

F110 must be connected according to the instructions in this manual.

Installation must be carried out in accordance with current standards and directives.

### Exhaust air



#### Connecting the exhaust air

With an exhaust air connection the heat in the building's ventilation air is used to heat the hot water while the house is ventilated.

The hot air is transferred from the rooms to the heat pump via the house ventilation system.



#### NOTE

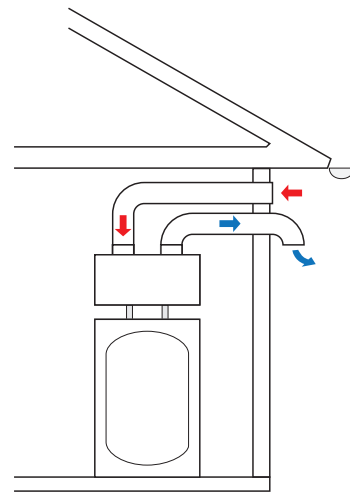
An air filter (HQ12) (enclosed), minimum classification G2, is required on the exhaust air duct of this connection. The filter must be cleaned regularly.



#### Caution

Noise from the fan can be transferred via the ventilation ducts.

### Outdoor air



#### Connecting the outdoor air

With outdoor air connection the heat in the outdoor air is used to heat up the hot water.

- It is important that the pipe for the incoming air is positioned so that exhaust air is not sucked into the heat pump, for example by bending one of the pipes. A combination device with grille can be used.
- The pressure drop across the system must not exceed 60 Pa. The pressure drop is affected by things like the air pipe dimension, the number of bends and the lengths of the pipes. Example: In a system with 160 mm air ducts and 7 bends the pipes must be a maximum of 8 m long.
- If incoming air to F110 contains a lot of particles and there is a high hot water demand the heat pump must be equipped with a filter (supplied), minimum class G2.
- Incoming and outgoing air for the heat pump can be cold and the ventilation pipes must therefore be insulated along their entire length.
- The heat pump operates at outdoor temperatures down to -10 °C.
- Attempt to find a location for F110 on the side of the house that faces the least sound sensitive neighbouring area.



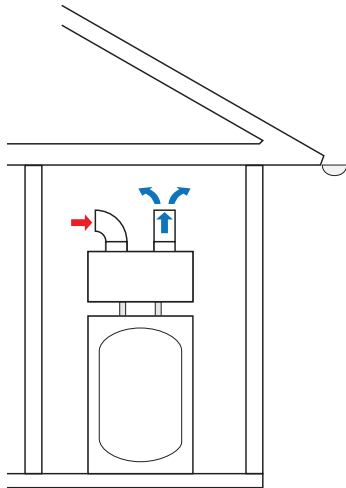
#### Caution

Noise from the fan can be transferred via the air ducts.



## Surrounding air

**Take incoming air from one room and release the outgoing air to the same room.**



## Connecting surrounding air

With surrounding air connection the heat in the room air is used to heat up the hot water. The outgoing air can be used to cool a room.

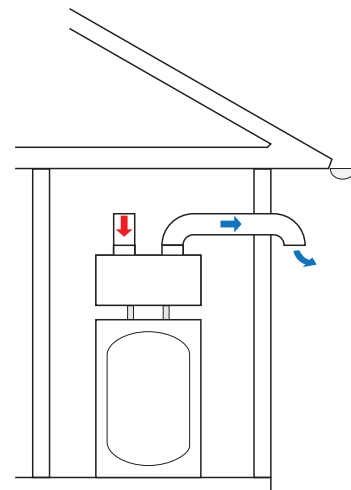
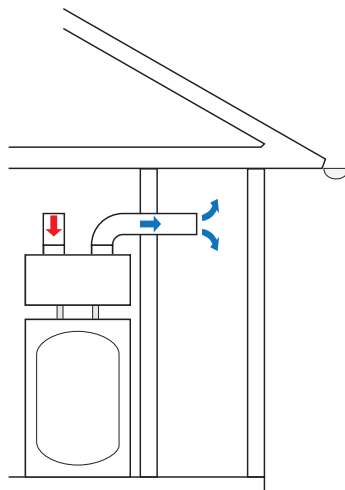
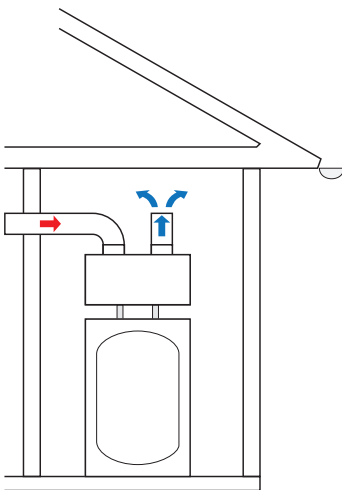
- If the incoming air is taken from the same room where the outgoing air is released it is important that the pipe for incoming air is not located so that the outgoing air is sucked into the heat pump. This can be prevented by the putting a bend in one of the air pipes.
- Have sufficient ceiling height so that recirculation of the air is avoided.
- If incoming air to F110 contains a lot of particles and there is a high hot water demand the heat pump must be equipped with an air filter (HQ12) (supplied), minimum class G2.
- Noise from the fan can be transferred to the room via the air pipes.
- In installations where air is taken from one room and released into another, there can be over pressure if the room is not ventilated correctly. This can lead to damp in the building.



### Caution

Outgoing air from F110 is cold and can therefore cool the room when it is released.

**Take incoming air from one room and release the outgoing air to another room or outdoors.**



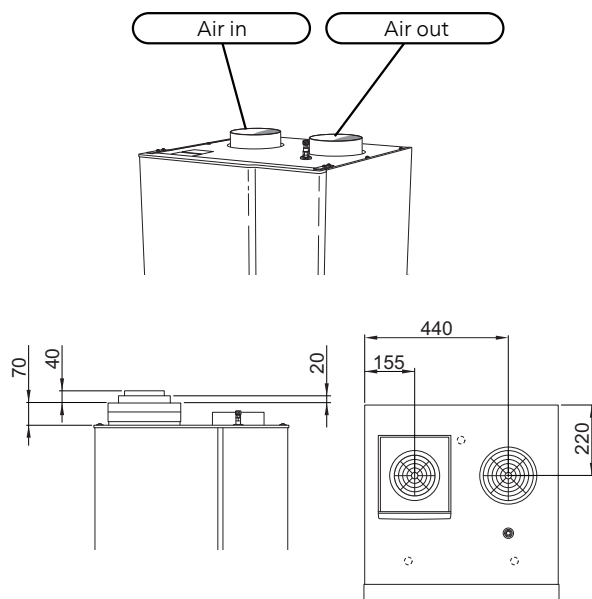
## General air connections

Air installation must be carried out in accordance with applicable directives.

To prevent fan noise being transferred to the ventilation devices, it may be a good idea to install a silencer in the duct, alternatively mount the enclosed silencer in F110.

Connections must be made via flexible hoses, which must be installed so that they are easy to replace. Ducts that may become cold must be insulated with diffusion-proof material (PE30) along their entire lengths. Ensure that the condensation insulation is sealed at any joints and/or at lead-in nipples, silencers, roof cowls or similar. Provision must be made for inspection and cleaning of the duct. Make sure that there are no reductions in the cross-sectional area in the form of kinks, tight bends etc., since this will reduce the capacity. The air duct system must be a minimum of air tightness class B.

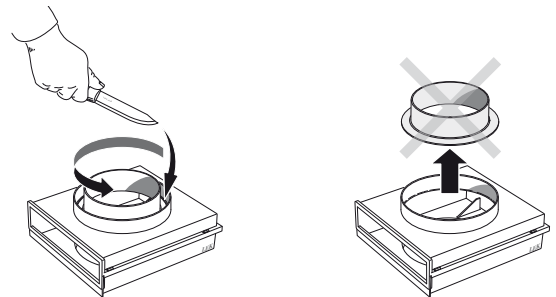
If there is a high hot water demand and incoming air to F110 contains a lot of particles the heat pump module must be equipped with an air filter (HQ12) (enclosed).



## 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 ( $\varnothing$  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. Press the filter cartridge into place in the connection for incoming air (XL43).



## Install the connector

If the filter cartridge is not installed, the enclosed connector is installed in the connection for incoming air (XL43).

## Install the silencer

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

## Exhaust air duct /kitchen fan

Exhaust air duct (kitchen fan) must not be connected to F110.

To prevent food vapour being transferred to F110 the distance between the kitchen fan and the exhaust air device must be considered. The distance should not be less than 1.5 m, but this can vary between different installations.

Always use a kitchen fan when cooking.



### NOTE

A duct in a masonry chimney stack must not be used for extract air.

## Ventilation flow (exhaust air)

Connect F110 so that all exhaust air except exhaust air duct air (kitchen fan) passes the evaporator (EP1) in the heat pump. For optimum heat pump performance, the ventilation flow should not be less than 25 l/s (90 m<sup>3</sup>/h). When the exhaust air temperature is lower than 20 °C (for example at start-up and when there is no one at home) the minimum value is 31 l/s (110 m<sup>3</sup>/h).

Ensure that the ventilation openings are not blocked. Set the ventilation capacity in the heat pump's menu system (menu 5.1.5).



### NOTE

If the exhaust air temperature falls below 10 °C, the compressor is blocked and electric additional heat is permitted. Heat is not recovered from the exhaust air when the compressor is blocked.

## Adjusting ventilation (exhaust air)

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 heat pump adjusted.

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

A defective ventilation installation may lead to reduced installation efficiency and thus poorer operating economy, and may result in moisture damage to the house.

# 5 Electrical connections

## General

All electrical equipment is connected at the factory. Installation must be carried out in accordance with current standards and directives.

When working behind screwed covers, the circuit fuse must be removed or the connection plug pulled out.

Work behind screwed covers may only be carried out under the supervision of a qualified electrician.

- Disconnect F110 before insulation testing the house wiring.
- For electrical wiring diagram for F110, see page 42.
- Signal cables to external connections must not be laid close to high current cables.
- Signal cables to external connections are four core, at least 0.35 mm<sup>2</sup>.
- If the supply cable is damaged, it must be replaced by qualified persons.



### NOTE

The supply cable must not be connected until the boiler has been filled. Internal components can be damaged.



### NOTE

Electrical installation and service must be carried out under the supervision of a qualified electrician. Electrical installation and wiring must be carried out in accordance with the stipulations in force.

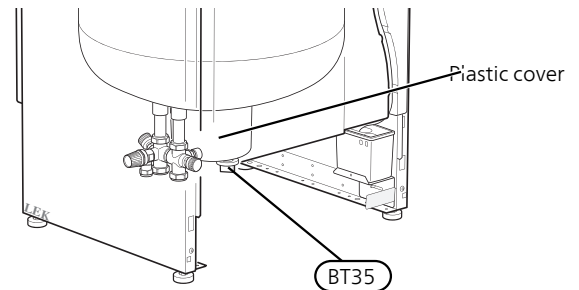
## Temperature limiter

The temperature limiter (FD1) cuts the power to the electric additional heat if the temperature reaches above 95 °C and is reset manually.

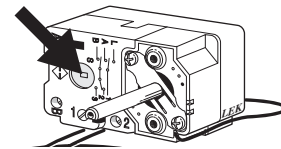
### Resetting

The temperature limiter (FD1) can be accessed from behind the front hatch inside the plastic cover.

1. Cut the current to the heat pump before starting work.
2. Remove the front hatch, see page 8 for instruction.
3. Remove the knob for the thermostat (BT35) and the plastic cover.
4. Press the button on the temperature limiter lightly.



Max 15 N (approx. 1,5 kg)



## Connections

### Power connection



### NOTE

To prevent interference, unscreened communication and/or sensor cables to external connections must not be laid closer than 20 cm from high voltage cables.

F110 is connected to an earthed socket with the factory installed power cord, which is supplied with connection plug.

## Optional connections

### AUX inputs

#### **Switch for external blocking off additional heat and/or compressor**

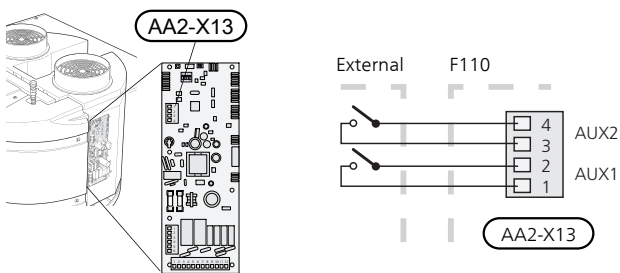
Blocking for additional heat and compressor is connected on two different AUX inputs.

When external blocking of additional heat and/or the compressor is desired, this can be connected to terminal block X13 on the base board (AA2).

The additional heat and/or the compressor are disconnected by connecting a potential-free switch function to AUX1 (X13:1 och X13:2) (additional heat) and/or AUX2 (X13:3 och X13:4) (compressor).

External blocking of addition and compressor can be combined.

A closed contact results in the electrical output being disconnected.



# 6 Commissioning and adjusting

## Preparations

1. Check that the display is off.
2. Check that any filling valves are fully closed and that the temperature limiter has not deployed.



### Caution

Check the temperature limiter (BT35) in the heat pump. It may have tripped during transportation.

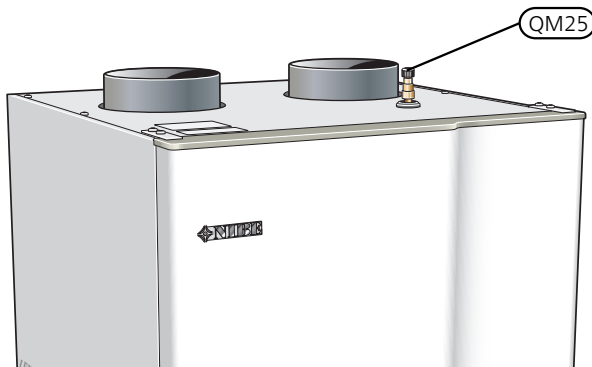
## Filling and venting

### Filling the hot water heater

1. Open a hot water tap in the house.
2. Fill the water heater by opening the shut-off valve on the cold water connection to the water heater.
3. When the water that comes out of the hot water tap is no longer mixed with air, the water heater is full and the tap can be closed.

### Bleeding

Vent the heat pump with the vent nipple (QM25) until there is no air in the water that comes out. Repeat the venting after operating for a time.



## Start-up and inspection

### Starting



### NOTE

There must be water in the water heater before the heat pump is started. Check that the thermostat BT35 is on max.

1. Start F110 by connecting the supply cable.
2. Follow the instructions in the start guide in the display. If the start guide does not start when you start the heat pump, start it manually in menu 5.7.



### TIP

See page 22 and onwards for a more in-depth introduction to the installation's control system (operation, menus etc.).

### Commissioning

The first time the heat pump is started a start guide is started. The start guide instructions state what needs to be 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.

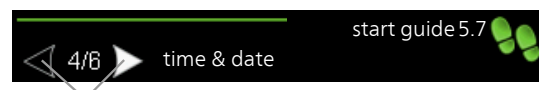


### Caution

As long as the start guide is active, no function in the heat pump will start automatically.

The guide will appear at each heat pump restart until it is deselected on the last page.

### Operation in the start guide



Arrows to scroll through windows in the start guide

1. Press the up or down button until one of the arrows in the top left corner (at the page number) has been marked.
2. Press the OK or Back button to move backwards or forwards in the start guide.

See page 22 for a more in-depth introduction to the heat pump's control system.

### Selecting control

The factory setting for F110 is that it controls according to delta-T, for certain water heaters this must be changed to a constant flow. The change is made in menu 5.6. See Service page 32 for instruction.

## Setting ventilation (exhaust air)

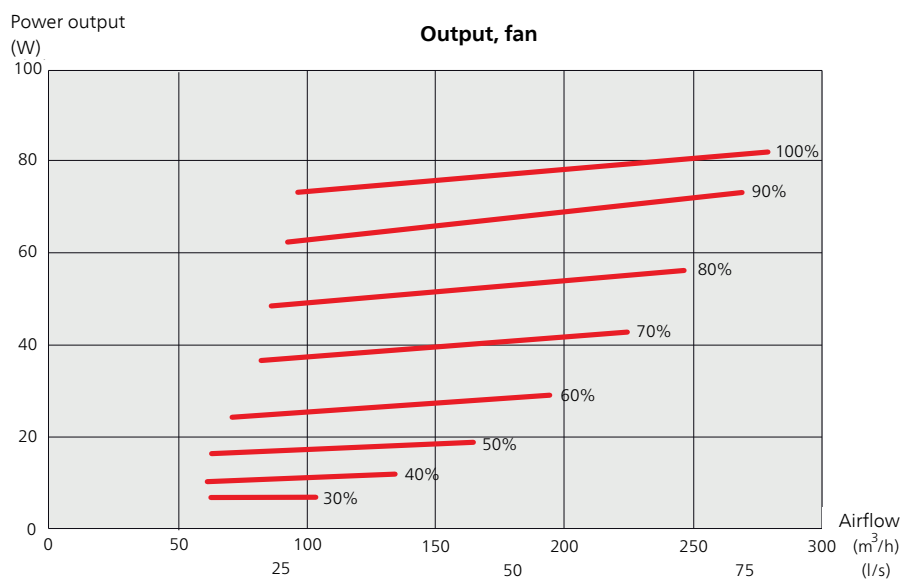
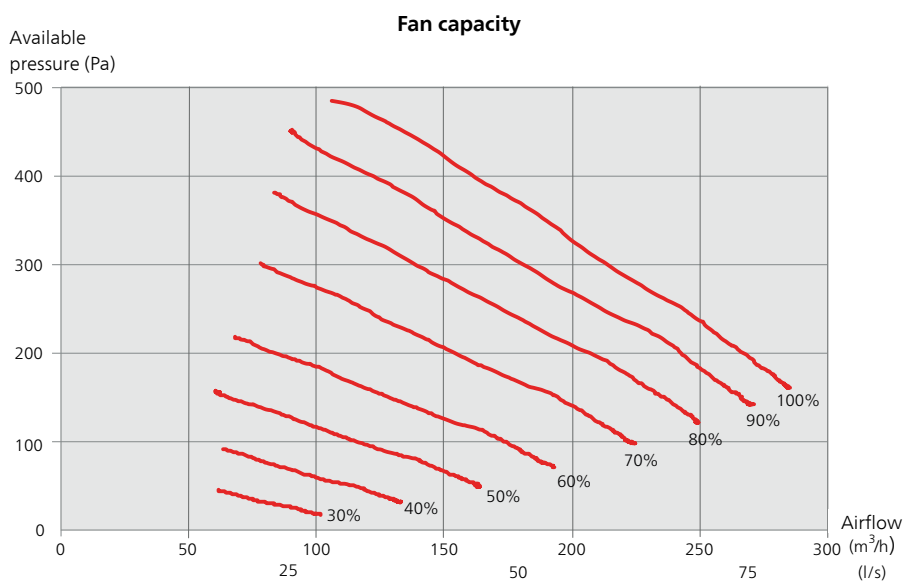
Ventilation must be set according to applicable standards. The setting is made in menu 5.1.5.

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



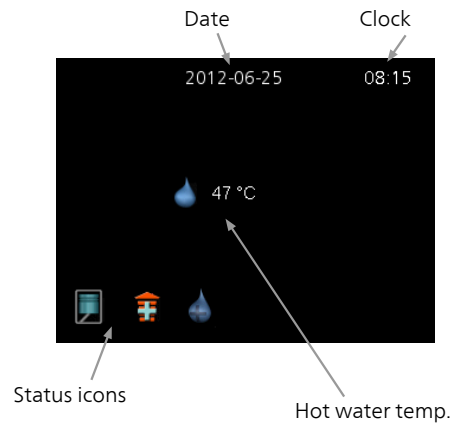
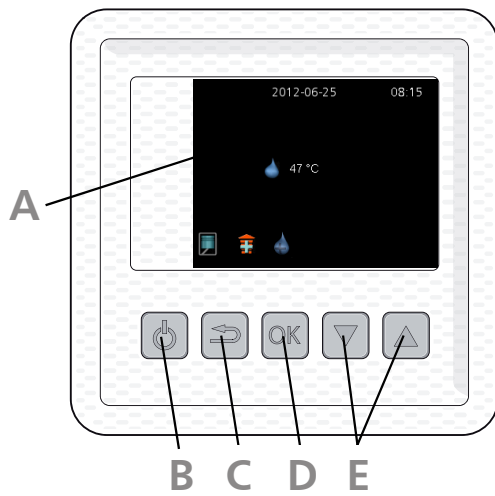
### NOTE

Order a ventilation adjustment to complete the setting.



# 7 Control - Introduction

## Display unit



- A Display**  
Instructions, settings and operational information are shown on the display.
- B Stand-by button**  
F110 can be switched to stand-by mode using the standby button. The compressor, immersion heater and fan are then switched off. Press the button for three seconds to activate/deactivate standby mode.
- C Back button**  
The back button is used to:
  - go back to the previous menu.
  - change a setting that has not been confirmed.
- D OK button**  
The OK button is used to:
  - confirm selections of sub menus/options/set values.
- E Up and down buttons**  
With the up and down buttons you can:
  - scroll in menus and between options.
  - increase and decrease the values.

## Menu system

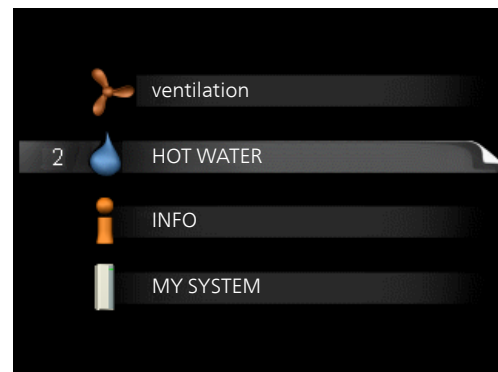
When F110 is started you come to the information menu. Basic information about the heat pump status is shown here.

The information menu shows:

- on starting.
- when the back button in the main menu is pressed.
- after 15 minutes of inactivity.

Press any button to go to the main menu.

### Main menu



The menu system's main menus are shown here.

#### Menu 1 - ventilation

Setting the ventilation. See page 25.

#### Menu 2 - HOT WATER

Setting and scheduling hot water production. See page 26.

#### Menu 3 - INFO

Display of temperatures and other operating information and access to the alarm log. See page 28.

#### Menu 4 - MY SYSTEM

Setting time, date, language, operating mode etc. See page 29.

See page 29.







#### Menu 5 - SERVICE

Advanced settings. These settings are not available to the end user. Go to the main menu and hold the Back button in for 7 seconds to access the Service menu. See page 31.



## Symbols in the display

The following symbols can appear in the display during operation.

Symbol	Description
	This symbol is displayed when the compressor is operating.
	This symbol is displayed when the additional heat is operating.
	This symbol appears when the speed of the fan is changed from its normal setting.
	This symbol appears when lux mode for hot water is activated or when periodic increase is active.
	This symbol appears when "scheduling" is activated in menu 2.3.
	This symbol appears when "holiday setting" is activated in menu 4.7.

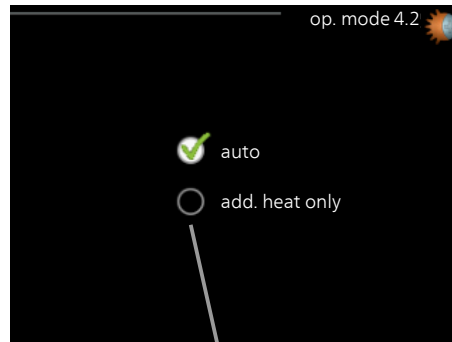
## Operation

To move the cursor, press the up or down button. The marked position is brighter and/or has a turned up tab.


## Selecting menu

To advance in the menu system select a sub-menu by marking it by using the up and down buttons and then pressing the OK button.



## Selecting options



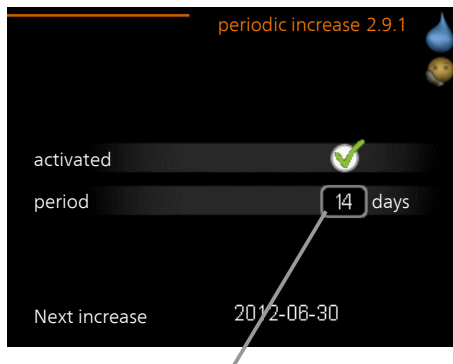
Selectable options

In an options menu the current selected option is indicated by a green tick. 

To select another option:





1. Mark the applicable option using the up or down button. One of the options is pre-selected (white). 
2. Press the OK button to confirm the selected option. The selected option has a green tick. 

## Setting a value



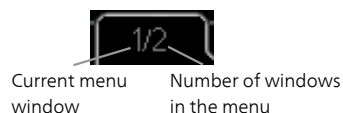
Adjustable value

To set a value:

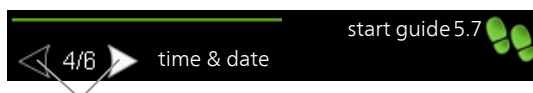
1. Mark the value you want to set using the up or down button. 
2. Press the OK button. The background of the value becomes green, which means that you have accessed the setting mode. 
3. Press the up button to increase the value or the down button to reduce the value. 
4. Press the OK button to confirm the value you have set. To undo and return to the original value, press the back button. 

## Scroll through the windows

A menu can consist of several windows. Mark the page number, using the up and down keys, in the upper left corner and then press the OK button to switch between the windows.



### ***Scroll through the windows in the start guide***



Arrows to scroll through windows in the start guide

1. Mark, using the up and down keys, one of the arrows in the top left corner (at the page number).
2. Press the OK button to scroll between the windows in the start guide.

# 8 Control - Menus

## Menu 1 - ventilation

### Overview

1 - ventilation

---

### Menu 1 - ventilation

Setting range: normal and speed 1-4  
Default value: normal

This menu is only shown with exhaust air installation.

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

When a new speed has been selected a countdown is initiated. After 4 hours the ventilation speed returns to the normal setting.

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



#### TIP

If longer time changes are required use the holiday function.

## Menu 2 - HOT WATER

### Overview

2 - HOT WATER	2.1 - temporary lux	
	2.2 - comfort mode	
	2.3 - scheduling	
	2.9 - advanced	2.9.1 - periodic increase

\* Accessory needed.

### Sub-menus

For the menu **HOT WATER** there are several sub-menus. Status information for the relevant menu can be found on the display to the right of the menus.

**temporary lux** Activation of temporary increase in the hot water temperature. Status information displays "off" or what length of time of the temporary temperature increase remains.

**comfort mode** Setting hot water comfort. The status information displays what mode is selected, "economy", "normal" or "luxury".


**scheduling** Scheduling hot water comfort. Status information "active" displays if the scheduling is active right now, the status information "set" displays if the scheduling is set but not active.

**advanced** Setting periodic increase in the hot water temperature.

### Menu 2.1 - temporary lux

Setting range: 3, 6 and 12 hours and mode "off"  
Default value: "off"

When hot water requirement has temporarily increased this menu can be used to select an increase in the hot water temperature to lux mode for a selectable time.

 **Caution**  
If comfort mode "luxury" is selected in menu 2.2 no further increase can be carried out.

The function is activated immediately when a time period is selected and confirmed using the OK button. The remaining time for the selected setting is shown to the right.

When the time has run out F110 returns to the mode set in menu 2.2.

Select "off" to switch off **temporary lux**.

### Menu 2.2 - comfort mode

Setting range: economy, normal, luxury  
Default value: normal

The difference between the selectable modes is the temperature of the hot tap water. Higher temperature means that the hot water lasts longer.

**economy:** This mode gives less hot water than the others, but is more economical.

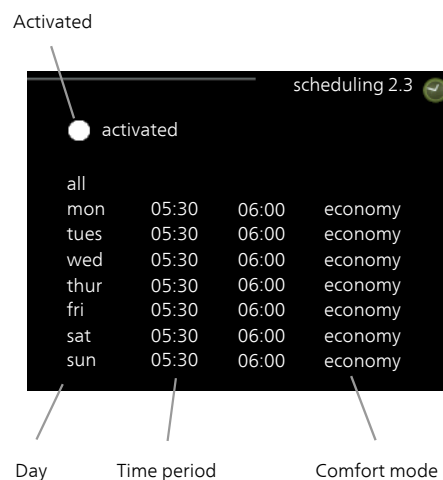
**normal:** Normal mode gives a larger amount of hot water and is suitable for most households.

**luxury:** Lux mode gives the greatest possible amount of hot water. In this mode, the immersion heater, as well as the compressor, is used to heat hot water, which may increase operating costs.

### Menu 2.3 - scheduling

What hot water comfort the heat pump is to work with can be scheduled here.

Scheduling is activated/deactivated by ticking/unticking "activated". Set times are not affected at deactivation.



**Activated:** Scheduling for the selected period is activated here. Set times are not affected at deactivation.

**Day:** Select which day or days of the week the schedule is to apply to here. To remove the scheduling for a particular day, the time for that day must be reset by setting the start time to the same as the stop time. If the line "all" is used, all days in the period are set for these times.

**Time period:** The start and stop time for the selected day for scheduling are selected here.

**Comfort mode:** Set the hot water comfort that is to apply during scheduling here.

**TIP**

If you wish to set similar scheduling for every day of the week start by filling in "all" and then changing the desired days.

**Caution**

If the stop time is earlier in the day than the start time it means that the period extends past midnight.

Scheduling always starts on the date that the start time is set for.

If time periods overlap each other at midnight, the time period that starts after midnight is prioritised.

## Menu 2.9 - advanced

Menu **advanced** has orange text and is intended for the advanced user. This menu has a sub-menu.

### Menu 2.9.1 - periodic increase

***period***

Setting range: 1 - 90 days

Factory setting: activated, 14 days

To prevent bacterial growth in the water heater, the compressor and the immersion heater can increase the hot water temperature for a short time at regular intervals.

The length of time between increases can be selected here. The time can be set between 1 and 90 days. Factory setting is 14 days. Tick/untick "activated" to start/switch off the function.

## Menu 3 - INFO

### Overview

3 - INFO	3.1 - service info
	3.2 - compressor info
	3.3 - add. heat info
	3.4 - alarm log

### Sub-menus

For the menu **INFO** there are several sub-menus. No settings can be made in these menus, they just display information.

**service info** shows temperature levels and software versions in the heat pump.

**compressor info** shows operating times, number of starts and status for the compressor.

**add. heat info** shows information about additional heat operating times and status.

**alarm log** displays the latest alarm and information about the heat pump when the alarm occurred.

### Menu 3.1 - service info

Information about the heat pump's actual operating status (e.g. current temperatures etc.) can be obtained here. No changes can be made.

The information is on several pages. Push the up and down buttons to scroll between the pages.

#### Symbols in this menu:



Compressor



Addition



Ventilation (only shown with exhaust air installation)



Periodic increase or lux mode for hot water



Scheduling



Holiday setting

### Menu 3.2 - compressor info

Information about the compressor's operating status and statistics can be obtained here. No changes can be made.

### Menu 3.3 - add. heat info

Information about the additional heat's operating status and statistics can be obtained here. No changes can be made.

### Menu 3.4 - alarm log

To facilitate fault-finding the heat pump operating status at alarm alerts is stored here. You can see information for the 10 most recent alarms.

To view the run status in the event of an alarm, mark the alarm and press the OK button.

# Menu 4 - MY SYSTEM

## Overview

4 - MY SYSTEM	4.2 - op. mode
	4.4 - time & date
	4.6 - language
	4.7 - holiday setting
	4.8 - alarm
	4.9 - advanced
	4.9.4 - factory setting

### Sub-menus

For the menu **MY SYSTEM** there are several sub-menus. Status information for the relevant menu can be found on the display to the right of the menus.

**op. mode** Activation of manual or automatic operating mode. The status information shows the selected operating mode.

**time & date** Setting current time and date. Status information displays the time.

**language** Select the language for the display here. The status information shows the selected language.

**holiday setting** Vacation scheduling hot water and ventilation. Status information "set" is displayed if you set a vacation schedule but it is not active at the moment, "active" is displayed if any part of the vacation schedule is active, otherwise it displays " off".

**alarm** Alarms can be reset here.

**advanced** Resetting all settings to factory default values.

### Menu 4.2 - op. mode

#### op. mode

Setting range: auto, add. heat only  
Default value: auto

The heat pump operating mode is usually set to "auto". It is also possible to set the heat pump to "add. heat only", but only when additional heat is used.

Change the operating mode by marking the desired mode and pressing the OK button.

#### Operating mode auto

In this operating mode the heat pump automatically selects what functions are permitted.

#### Operating mode add. heat only

In this operating mode the compressor is not active, only additional heat is used.



#### Caution

If you choose mode "add. heat only" the compressor is deselected and there is a higher operating cost.

### Menu 4.4 - time & date

Set time and date and display mode here.

### Menu 4.6 - language

Choose the language that you want the information to be displayed in here.

### Menu 4.7 - holiday setting

To reduce energy consumption you can schedule a reduction in hot water temperature and any ventilation.

This setting applies to all climate systems with room sensors.

This setting applies to all climate systems without room sensors.

Vacation scheduling starts at 00:00 on the start date and stops at 23:59 on the stop date.



#### TIP

Complete holiday setting about a day before your return so that the hot water temperature has time to regain usual levels.



#### Caution

If you choose to switch off hot water production during the vacation "periodic increase" (preventing bacterial growth) are blocked during this time. "periodic increase" started in conjunction with the vacation setting being completed.

### Menu 4.8 - alarm

This menu is only available if an alarm has occurred.

Here you can reset any alarms that have occurred in F110.

### Menu 4.9 - advanced

Menu **advanced** has orange text and is intended for the advanced user. This menu has a sub-menu.

### Menu 4.9.4 - factory setting

All settings that are available to the user (including advanced menus) can be reset to default values here.



**Caution**

After factory settings, user settings must be reset.



# Menu 5 - SERVICE

## Overview

5 - SERVICE	5.1 - operating settings	5.1.1 - hot water settings
		5.1.5 - fan speed
		5.1.15 - air in-temperatures
		5.1.16 - installation
	5.5 - factory setting	
	5.6 - forced control	
	5.7 - start guide	
	5.8 - quick start	

Go to the main menu and hold the Back button in for 7 seconds to access the Service menu.

### Sub-menus

The menu **SERVICE** has orange text and is intended for the advanced user. This menu has several sub-menus.

**operating settings** Operating settings for the heat pump.

**factory setting** Total reset of all settings (including settings available to the user ) to default values.

**forced control** Forced control of the different components in the heat pump.

**start guide** Manual start of the start guide which is run the first time the heat pump is started.

**quick start** Quick starting the compressor.



#### NOTE

Incorrect settings in the service menus can damage the heat pump.

## Menu 5.1 - operating settings

Make settings for the heat pump here.

## Menu 5.1.1 - hot water settings

### *economy*

Setting range economy start temp: 10 – 53 °C

Factory setting economy start temp: 45 °C

Setting range economy stop temperature: 13 – 56 °C

Factory setting economy stop temperature: 51 °C

### *normal*

Setting range normal start temp: 10 - 53 °C

Factory setting normal start temp: 49 °C

Setting range normal stop temperature: 13 - 56 °C

Factory setting normal stop temperature: 54 °C

### *luxury*

Setting range luxury start temp: 10 – 77 °C

Factory setting luxury start temp: 53 °C

Setting range luxury stop temperature: 13 – 80 °C

Factory setting luxury stop temperature: 58 °C

### *stop per increase*

Setting range: 5 – 80 °C

Default value: 60 °C

Here you set the start and stop temperature of the hot water for the different comfort options in menu 2.2 as well as the stop temperature for periodic increase in menu 2.9.1.

## Menu 5.1.5 - fan speed

### **Exhaust air installation**

Setting range: 30 – 100 %

Factory setting normal: 70 %

Factory setting speed 1: 30 %

Factory setting speed 2: 50 %

Factory setting speed 3: 70 %

Factory setting speed 4: 90 %

### **Outdoor air installation**

Setting range: 30 – 100 %

Factory setting speed 1: 70 %

Factory setting speed 2: 50 %

### **Installation ambient air**

Setting range: 30 – 100 %

Factory setting speed 1: 30 %

Set the speed of the fan here.

At outdoor air installations the fan runs at speed 1 at outdoor temperatures below 10 °C, then speed 2 takes over.



#### **Caution**

An incorrectly set ventilation flow can damage the house and may also increase energy consumption.

## Menu 5.1.15 - air in-temperatures

### **max air in.temp.**

Setting range: 20 - 37 °C

Default value: 37 °C

### **min air in.temp.**

Setting range: -10 - 25 °C

Factory setting outdoor air: -10 °C

Factory setting surrounding air and exhaust air: 10 °C

Set the min and max temperature of the incoming air to F110 here.

## Menu 5.1.16 - installation

### **installation**

Setting range: outdoor air, ambient air, exhaust air

Factory setting: outdoor air

Set how F110 is installed here.

This menu is not reset by a return to factory settings in menu 4.9.4 or 5.5.

## Menu 5.5 - factory setting

All settings can be reset (including settings available to the user) to default values here.



#### **NOTE**

When resetting, the start guide is displayed the next time the heat pump is restarted.

## Menu 5.6 - forced control

You can force control the different components in the heat pump here.

## Menu 5.7 - start guide

When the heat pump is started for the first time the start guide starts automatically. Start it manually here.

See page 20 for more information about the start guide.

## Menu 5.8 - quick start

It is possible to start the compressor from here.



#### **Caution**

There must be a hot water demand to start the compressor.



#### **Caution**

Do not quick start the compressor too many times over a short period of time as this may damage the compressor and its surrounding equipment.

# 9 Service

## Service actions



### NOTE

Servicing should only be carried out by persons with the necessary expertise.

When replacing components on F110 only replacement parts from NIBE may be used.

### Emptying

1. Cut the current to the heat pump by pulling out the supply cable.
2. Close the shut-off valve (QM30) (turn clockwise).
3. Open the mixer valve (FQ1) fully (turn anticlockwise).
4. Open the safety valve (FL1) (turn slowly anticlockwise until it remains in the raised position).



### NOTE

Draining is through the safety valve overflow pipe. Beware of any water splashes.

5. Open a hot water tap to let air into the system. If this is not sufficient, loosen a pipe coupling marked HW on the mixer valve.

To drain F110 Cu faster: Slacken off the vacuum valve (FL6) a few turns. Some water will run out at the valve.

To drain F110 R faster: Slacken off the vent screw (QM5) a few turns. Some water will run out at the screw.

# 10 Disturbances in comfort

If F110 is not installed together with the indoor module, go directly to section Troubleshooting.

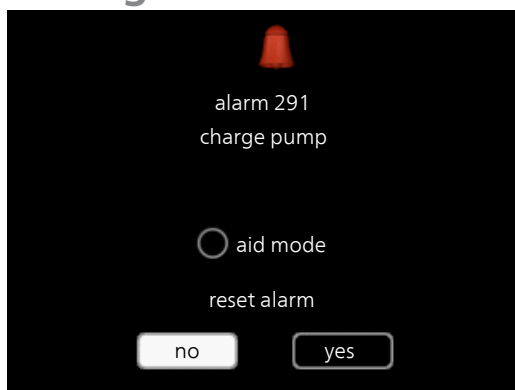
In most cases, the heat pump notes operational interference (operational interference can lead to disturbance in hot water comfort) and indicates this with an alarm in the display.

## Info menu

All the heat pump measurement values are gathered under menu 3.1 in the heat pump menu system. Looking through the values in this menu can often simplify finding the source of the fault. See help menu or user manual for more information about menu 3.1.

All the heat pump measurement values are gathered under menu 3.1 in the heat pump menu system. Looking through the values in this menu can often simplify finding the source of the fault.

## Manage alarm



In the event of an alarm, a malfunction has occurred, which is indicated by an alarm symbol in the display.

### Alarm

In the event of an alarm a malfunction has occurred that F110 cannot rectify itself. The display shows what type of alarm it is and lets you reset the alarm. You can also choose to set the heat pump to rescue mode

**reset alarm** In most cases it is enough to select "reset alarm" to correct the problem that caused the alarm. If the alarm recurs the problem that caused the alarm remains. If the alarm disappears and then returns, see the troubleshooting section (page 35).

**aid mode** "aid mode" is a type of emergency mode. This means that the heat pump produces hot water despite there being some kind of problem. This can mean that the heat pump's compressor is not running. In this case the immersion heater produces hot water.



### Caution

Selecting "aid mode" is not the same as correcting the problem that caused the alarm. The alarm symbol will remain displayed.

### Alarm list

#### Sensor alarm for example BT6/BT13/BT77:

The sensor has lost contact with the accessory card or is broken. The alarm resets automatically after correct connection.

- Check the connection of the sensor to the base card and that the cable has not got a short-circuit.
- If the above is not the source of the fault, replace the sensor.

### Communication alarm display

The display has lost contact with the base card.

- Check the connection between F110 and the base card and that the cable has not got a short-circuit.

## Troubleshooting

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

### Basic actions

Start by checking the following possible fault sources:

- That the indoor module or supply cable to F110 is connected.
- Group and main fuses of the accommodation.
- The property's earth circuit breaker.

### Low hot water temperature or a lack of hot water

- Large hot water consumption.
  - Wait until the hot water has heated up. Temporarily increased hot water capacity (temporary lux) can be activated in menu 2.1.
- Too low hot water setting.
  - Enter menu 2.2 and select a higher comfort mode.
- Low or a lack of ventilation (exhaust air installation)
  - See section "Low or a lack of ventilation".
- Applies to incoming air blocked (outdoor air installation)
  - Clean the grille.
- Filter blocked (installation with ambient air)
  - Clean or replace the filter.
- Thermostat setting too low (BT35)
  - Turn the thermostat to max.

### Low or a lack of ventilation (exhaust air installation)

- The ventilation is not adjusted.
  - Order/implement ventilation adjustment.
- Filter blocked.
  - Clean or replace the filter.
- Exhaust air device blocked or throttled down too much.
  - Check and clean the exhaust air devices.
- Fan speed in reduced mode.
  - Enter menu 1 and select "normal".

### High or distracting ventilation (exhaust air installation)

- The ventilation is not adjusted.
  - Order/implement ventilation adjustment.
- Fan speed in forced mode.
  - Enter menu 1 and select "normal".
- Filter blocked.
  - Clean or replace the filter.

### Gurgling sound

- Not enough water in the water seal.
  - Refill the water seal with water.
- Choked water seal.
  - Check and adjust the condensation water hose.

# 11 Accessories

## **Base extension EF 45**

Part no. 067 152

## **Separable valve connector**

For external installation, relocation or separation.

### ***F110 Copper***

Part no. 624 922

### ***F110 Stainless steel***

Part no. 624 923

## **Top cabinet**

Top cabinet for concealing the ventilation ducts.

### ***245 mm***

Part no. 089 756

### ***345 mm***

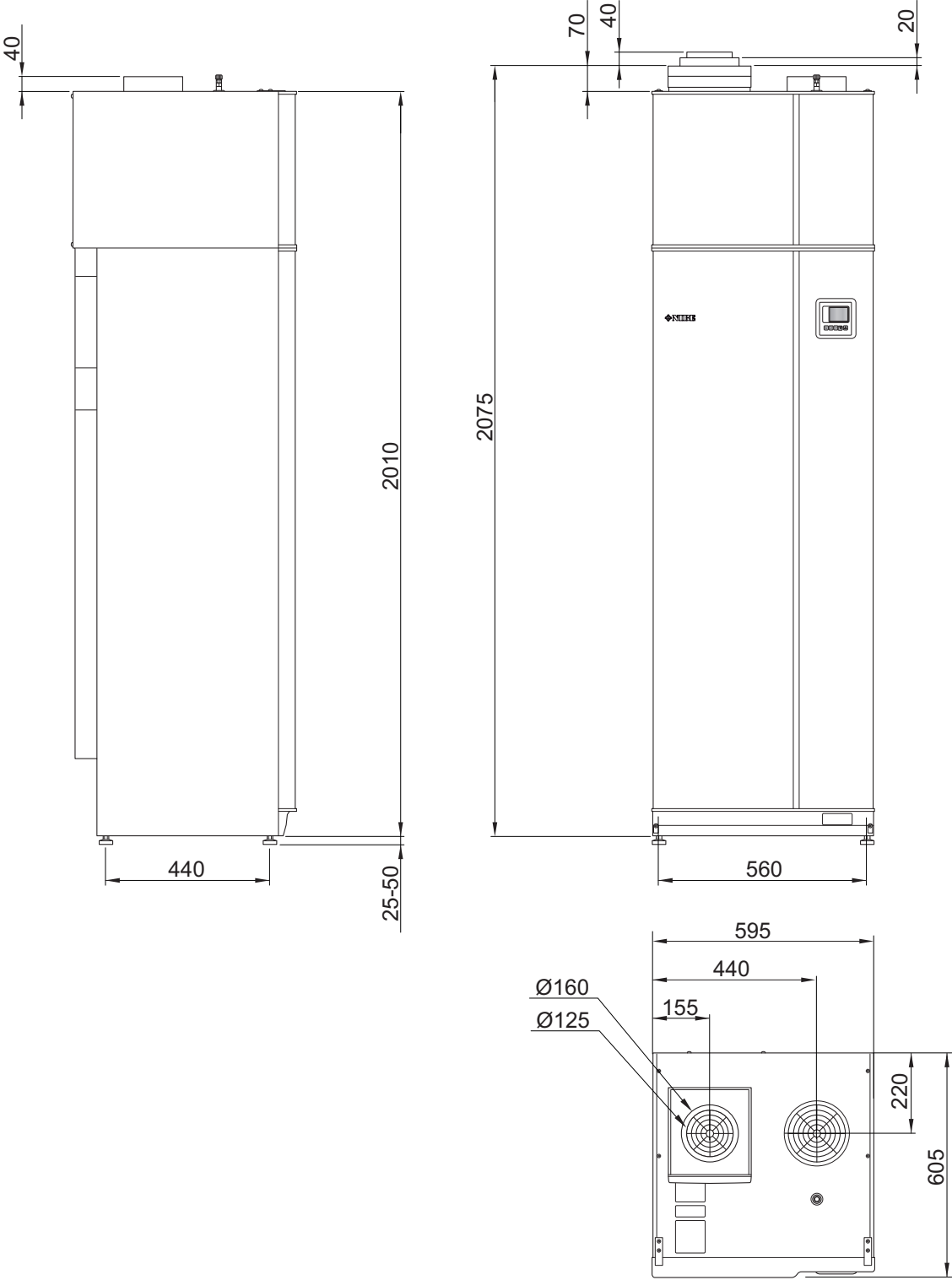
Part no. 089 757

### ***395-645 mm***

Part no. 089 758

# 12 Technical data

## Dimensions and setting-out coordinates



## Technical specifications

Supplier		NIBE		
Model		F110		
Type of installation		Exhaust air	Outdoor air	Surrounding air
Specified output according to EN16147	kW	1.32 <sup>1)</sup>	1.08 <sup>2)</sup>	1.32 <sup>1)</sup>
COP		2.89	2.36	3.27
Sound power level ( $L_{W(A)}$ ) according to EN 12 102 <sup>4)</sup>	dB(A)	47		
Sound pressure level in the boiler house ( $L_{P(A)}$ ) according to EN ISO 11 203 <sup>5)</sup>	dB(A)	43		

<sup>1)</sup> at 180 m<sup>3</sup>/h and 20 °C air temperature

<sup>2)</sup> at 250 m<sup>3</sup>/h and 7 °C air temperature

<sup>4)</sup> The value varies with the selected fan speed. Visit [www.nibe.eu](http://www.nibe.eu) for more extensive sound data including sound to channels.

<sup>5)</sup> The value can vary with the room's damping capacity. These values apply with a damping of 4 dB.



1x230 V				
<b>Additional power</b>				
Output immersion heater (max)	kW	1.3		
<b>Electrical data</b>				
Rated voltage	V	230V ~ 50 Hz		
Max operating current	A	9.1		
Driving power circulation pump	W	5 - 20		
Driving power fan	W	20 - 75		
Specified compressor output according to EN16147 <sup>6)</sup>	kW	1.32		
Fuse	A	10		
Enclosure class		IP 21		
<b>Refrigerant circuit</b>				
Type of refrigerant		R134A		
Volume	kg	0.38		
Compressor type		Rotation		
Cut-out value pressostat HP	MPa/bar	2.2/22.0		
<b>Air flow requirement</b>				
Min air flow, air temperature <10 °C	l/s	-	83	-
Min air flow, air temperature >10 °C	l/s	25	42	25
Temperature range for compressor operation (factory setting)	°C	+10 - +37	-10 - +37	+10 - +37
<b>Pipe connections</b>				
Hot water ext Ø	mm	22		
Cold water ext Ø	mm	22		
Safety valve ext Ø	mm	15		
Ventilation ext Ø	mm	160		
Filter box ext Ø	mm	160 / 125		

<sup>6)</sup> 180 m<sup>3</sup>/h

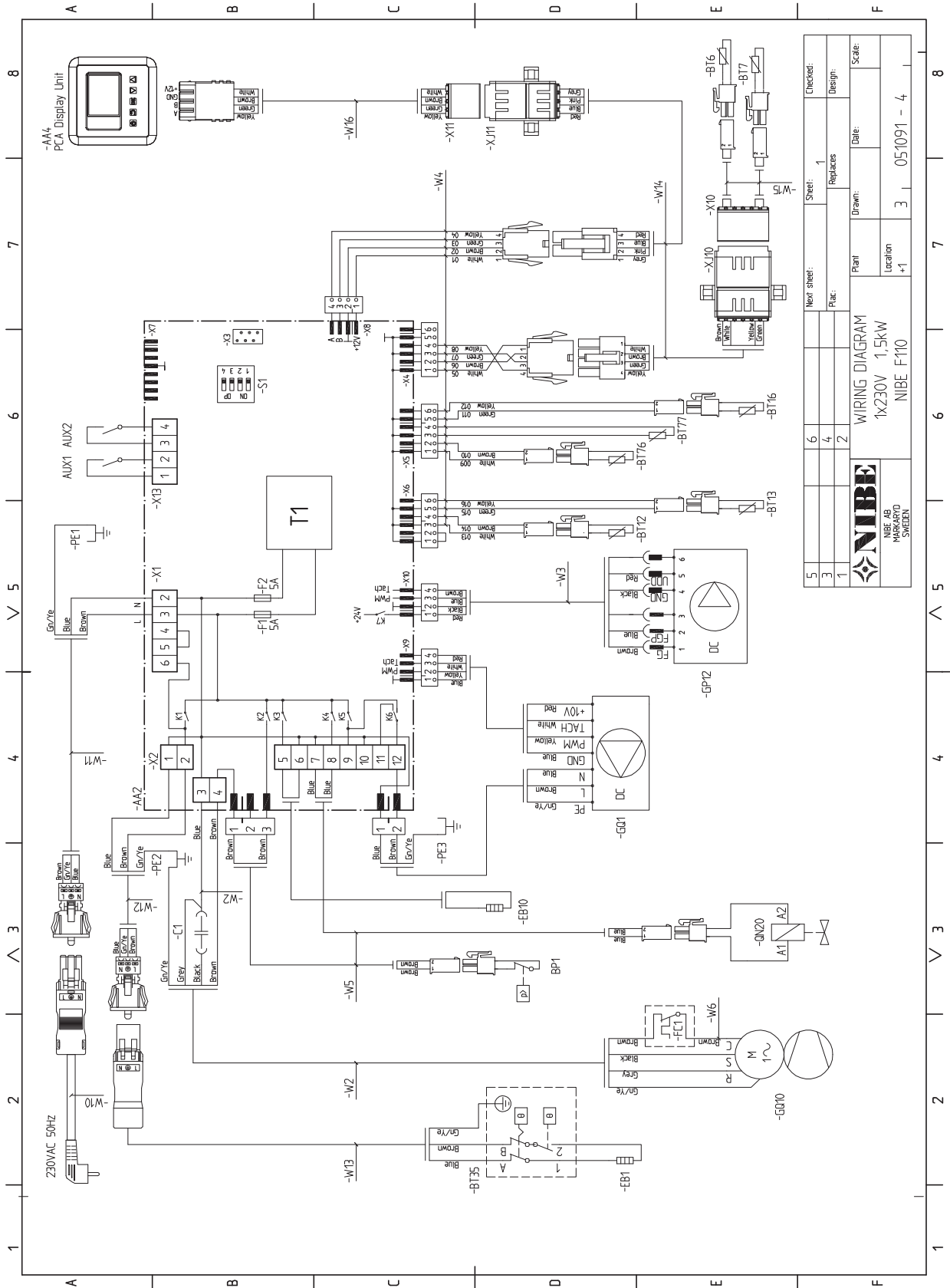
Miscellaneous			
<b>Water heater</b>			
Corrosion protection		CU	R
Volume, hot water heater	litre	265	
Min pressure in water heater	MPa/bar	0.2/2.0	
Max pressure in hot water heater	MPa/bar	1.0/10.0	
Safety valve deploys at	MPa/bar	0.9/9.0	1.0/10.0
Max temperature with compressor	°C	56	
Max temperature with additional heat	°C	95	
<b>Capacity hot water heating according to EN 16147<sup>7)</sup></b>			
Tap volume 40 °C at Normal comfort ( $V_{max}$ )	litre	365	
Idle loss at Normal comfort ( $P_{es}$ )	W	42	
<b>Dimensions and weight</b>			
Width	mm	600	
Depth	mm	605	
Height	mm	2030 - 2060	
Required headroom	mm	2110	
Weight	kg	144	127
Part No.		066 083	066 025

<sup>7)</sup> A20(12), airflow 180 m<sup>3</sup>/h

## Energy labelling

Supplier		NIBE AB		
Model		F110 Exhaust air	F110 Outdoor air	F110 Surrounding air
Declared load profile		<b>XL</b>	<b>XL</b>	<b>XL</b>
Water heating energy efficiency class, average climate		<b>A</b>	<b>A</b>	<b>A</b>
Water heating energy efficiency, average climate, $\eta_{wh}$	%	116	95	131
Annual energy consumption water heating, average climate, AEC	kWh	1,452	1,778	1,283
Thermostat setting	°C	54	54	54
Sound power level $L_{WA}$ indoors	dB	47	47	47
Water heating energy efficiency, cold climate, $\eta_{wh}$	%	116	82	131
Water heating energy efficiency, warm climate, $\eta_{wh}$	%	116	106	131
Annual energy consumption water heating, cold climate, AEC	kWh	1,452	2,037	1,283
Annual energy consumption water heating, warm climate, AEC	kWh	1,452	1,589	1,283
Daily electrical consumption, $Q_{elec}$	kWh	6.60	8.08	5.83
Applied standards		EN 16147		

# Electrical circuit diagram



5	Next sheet:	Sheet:	Checked:
6	1	1	Design:
3	Replaces:		
4	Plac:		
1	Plant	Drawn:	Date:
	1x230V 1,5kW	3	05/09/1 - 4
	NIBE F110	Location	
	+1		



# 13 Item register

## Item register

- A**
  - Accessories, 36
  - Adjusting ventilation, 17
  - Assembly, 5
- C**
  - Commissioning and adjusting, 20
    - Filling and venting, 20
    - Preparations, 20
    - Start-up and inspection, 20
  - Connecting cold and hot water, 13
  - Contact information, 4
  - Control, 22, 25
    - Control - Introduction, 22
    - Control - Menus, 25
  - Control - Introduction, 22
    - Menu system, 22
    - Room unit, 22
  - Control - Menus, 25
    - Menu 1 - INDOOR CLIMATE, 25
    - Menu 2 - HOT WATER, 26
    - Menu 3 - INFO, 28
    - Menu 4 - HEAT PUMP, 29
    - Menu 5 - SERVICE, 31
- D**
  - Delivery and handling, 5
    - Removing the covers, 8
    - Supplied components, 7
    - Transport, 5
  - Dimensions and pipe connections, 13–14
  - Dimensions and setting-out coordinates, 37
  - Disturbances in comfort
    - Manage alarm, 34
    - Troubleshooting, 35
- E**
  - Electrical circuit diagram, 42
  - Electrical connections, 18
    - Connections, 18
    - General, 18
    - Temperature limiter, compressor, 18
  - Emptying, 33
  - Energy labelling, 41
  - Exhaust air duct, 17
  - External connection options
    - Possible selection for AUX inputs, 19
    - Switch for external blocking of addition and/or compressor, 19
- F**
  - Filling and venting, 20
    - Filling the hot water heater, 20
  - Filling the hot water heater, 20
- I**
  - Important information, 2
    - Safety information, 2
  - Inspection of the installation, 3
- M**
  - Manage alarm, 34
  - Marking, 2
  - Menu 1 - INDOOR CLIMATE, 25
  - Menu 2 - HOT WATER, 26
  - Menu 3 - INFO, 28
  - Menu 4 - HEAT PUMP, 29
  - Menu 5 - SERVICE, 31
  - Menu system, 22
- P**
  - Pipe and air connections, 12
  - Pipe and ventilation connections
    - Adjusting ventilation, 17
    - Connecting cold and hot water, 13
    - Dimensions and pipe connections, 13–14
    - Exhaust air duct, 17
    - General pipe connections, 12
    - Pipe dimensions, 13
    - Setting out dimensions, 13
    - Symbol key, 12
    - System diagram, 12
    - Ventilation flow, 17
  - Pipe dimensions, 13
  - Possible selection for AUX inputs, 19
  - Preparations, 20
- R**
  - Removing the covers, 8
  - Room unit, 22
- S**
  - Safety information, 2
    - Contact information, 4
    - Inspection of the installation, 3
    - Marking, 2
    - Serial number, 2
    - Symbols, 2
  - Serial number, 2
  - Service
    - Service actions, 33
  - Service actions, 33
    - Emptying, 33
  - Setting out dimensions, 13
  - Start-up and inspection, 20
    - Setting the ventilation, 21
    - Start-up, 20
  - Supplied components, 7
  - Switch for external blocking of addition and/or compressor, 19
  - Symbol key, 12
  - Symbols, 2
  - System diagram, 12
- T**
  - Technical data, 37
    - Dimensions and setting-out coordinates, 37
    - Electrical circuit diagram, 42
    - Technical Data, 38
  - Technical Data, 38
  - Temperature limiter, compressor, 18
    - Resetting, 18
  - The design of the exhaust air module
    - List of components, 11
  - The heat pump design, 10
  - Transport, 5
    - Assembly, 5
  - Troubleshooting, 35
- V**
  - Ventilation flow, 17



SE

### Återvinning



Lämna avfallshandlingen av emballaget till den installatör som installerade produkten eller till särskilda avfallsstationer.

När produkten är uttjänt får den inte slängas bland vanligt hushållsavfall. Den ska lämnas in till särskilda avfallsstationer eller till återförsäljare som tillhandahåller denna typ av service.

Felaktig avfallshandling av produkten från användarens sida gör att administrativa påföljder tillämpas i enlighet med gällande lagstiftning.

GB

### 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.

DE

### Recycling

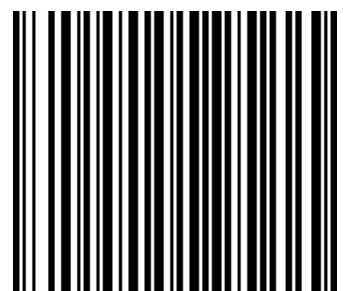


Übergeben Sie den Verpackungsabfall dem Installateur, der das Produkt installiert hat, oder bringen Sie ihn zu den entsprechenden Abfallstationen.

Wenn das Produkt das Ende seiner Lebensdauer erreicht hat, darf es nicht über den normalen Hausmüll entsorgt werden. Stattdessen muss es bei speziellen Entsorgungseinrichtungen oder Händlern abgegeben werden, die diese Dienstleistung anbieten.

Eine unsachgemäße Entsorgung des Produkts durch den Benutzer zieht Verwaltungsstrafen gemäß geltendem Recht nach sich.

NIBE AB Sweden  
Hannabadsvägen 5  
Box 14  
SE-285 21 Markaryd  
info@nibe.se  
www.nibe.eu



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