IHB EN 1927-6
231974

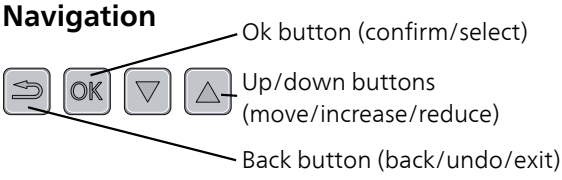
INSTALLATION MANUAL

Hot water heat pump
NIBE F110

NIBE

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 24.

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 34 for instructions.

Table of Contents

1 Important information

Safety information

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

The manual must be left with the customer.

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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Water may drip from the safety valve's overflow pipe. The entire length of the overflow water pipe must be routed to a suitable drain and be inclined to prevent water pockets, and must also be frost-proof. The overflow pipe must be at least the same size as the safety valve. The overflow pipe must be visible and its mouth must be open and not located close to electrical components.

Symbols

NOTE

This symbol indicates danger to person or machine .

Caution

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

CE The CE mark is obligatory for most products sold in the EU, regardless of where they are made.

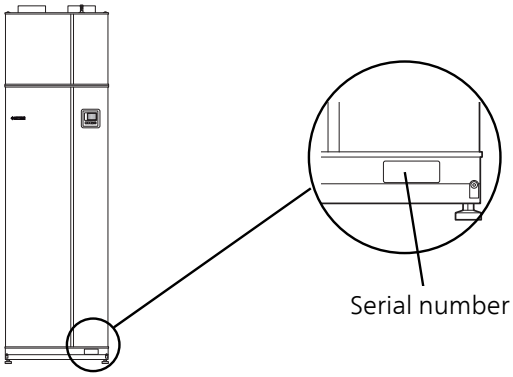
IP21 Classification of enclosure of electro-technical equipment.

Read the User Manual.

Read the Installer Manual.

Serial number

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



Caution

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

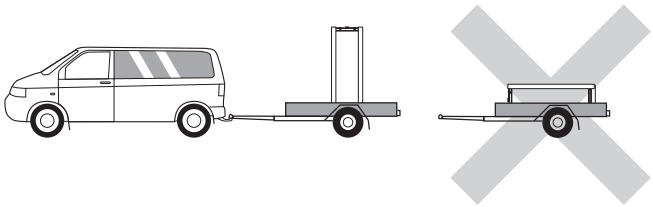
Current regulations require the heating installation to be inspected before it is commissioned. The inspection must be carried out by a suitably qualified person.

✔	*Description*	*Notes*	*Signature*	*Date*
Ventilation, exhaust air (page 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			

2 Delivery and handling

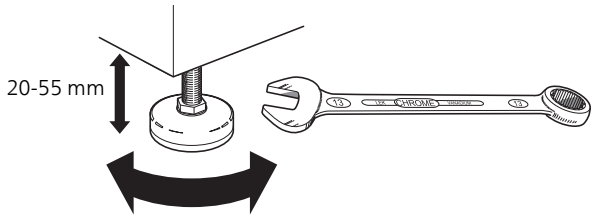
Transport

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

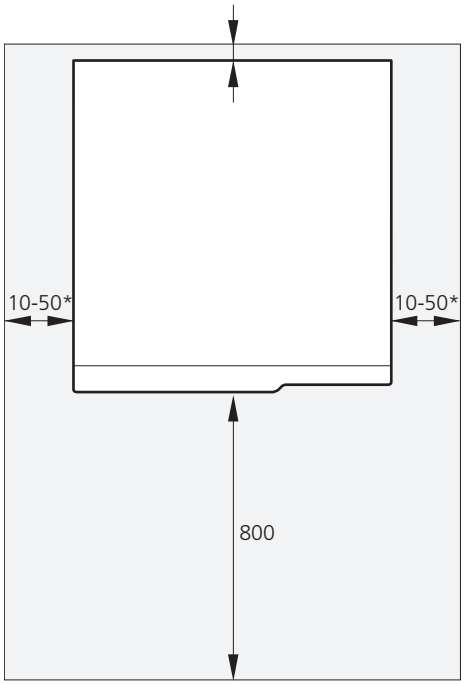
- Position F110 on a solid foundation indoors that withstands water and the weight of the heat pump. Use the product's adjustable feet to obtain a horizontal and stable set-up.



- Because water comes from F110, the area where the heating pump is located must be equipped with floor drainage.
- 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 heat pump's installation area should always 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 F110 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.



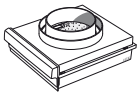
* Depending on whether the panels can be removed or not.

NOTE

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

Supplied components

Silencer



Filter cartridge

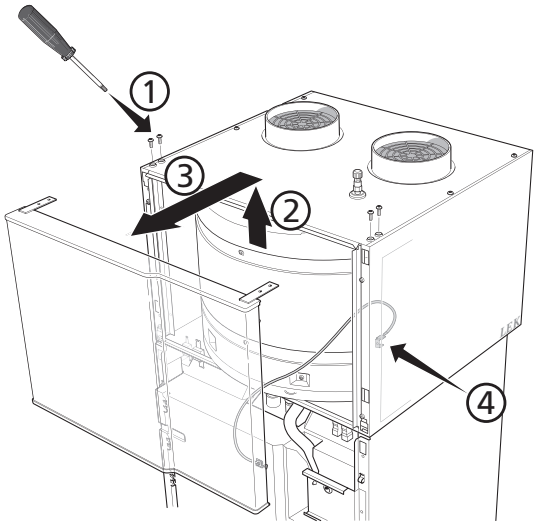
Air connection

LOCATION

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

Removing the covers

AIR TREATMENT HATCH



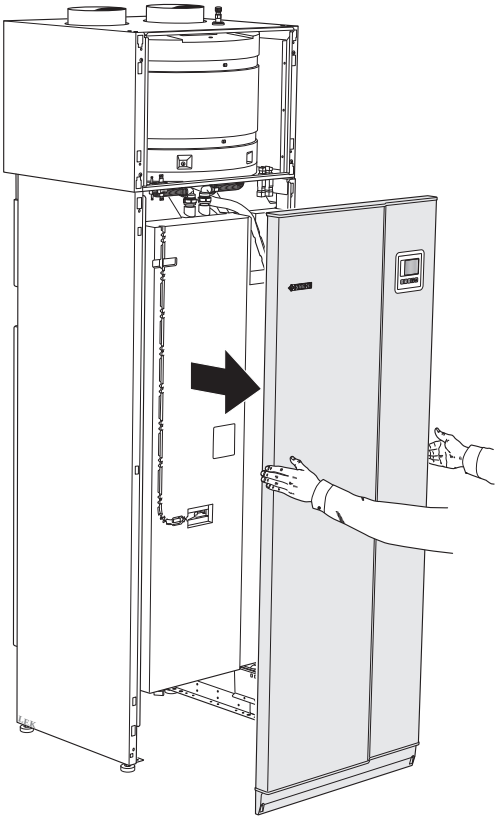
1. Slacken off the screws for the securing plate above F110.
2. Slide the hatch upwards and pull it towards you.
3. Pull the hatch towards yourself.

NOTE

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.

FRONT COVER

Remove the front hatch by pulling it straight out.



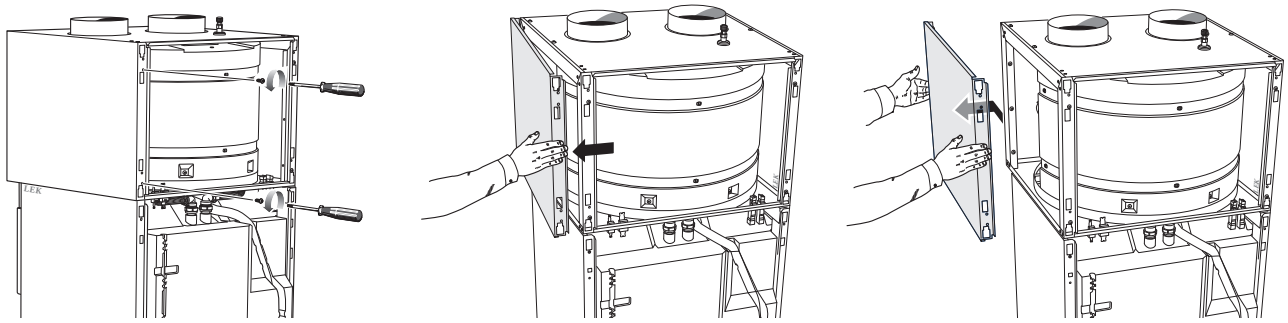
NOTE

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

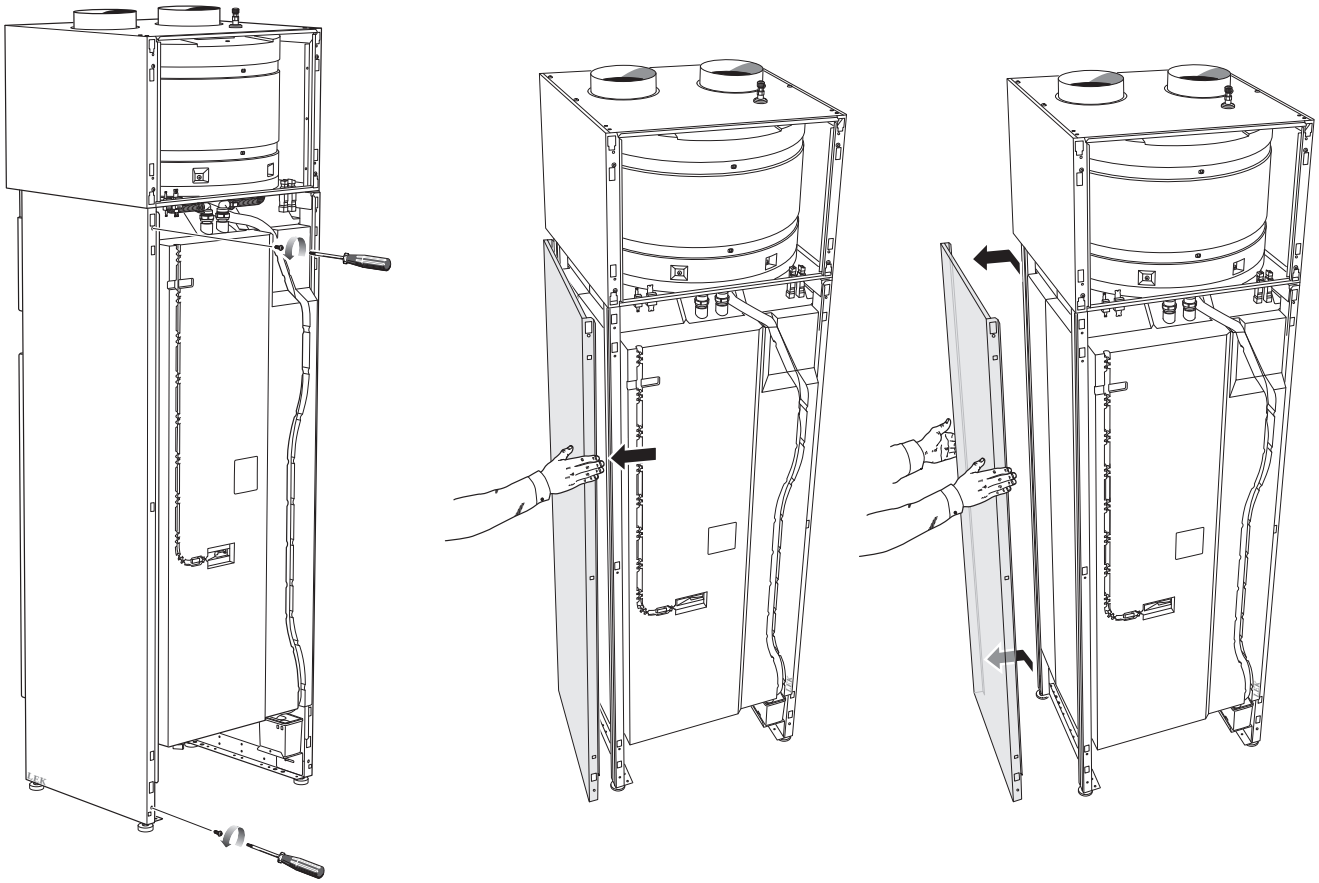
Air treatment section

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.

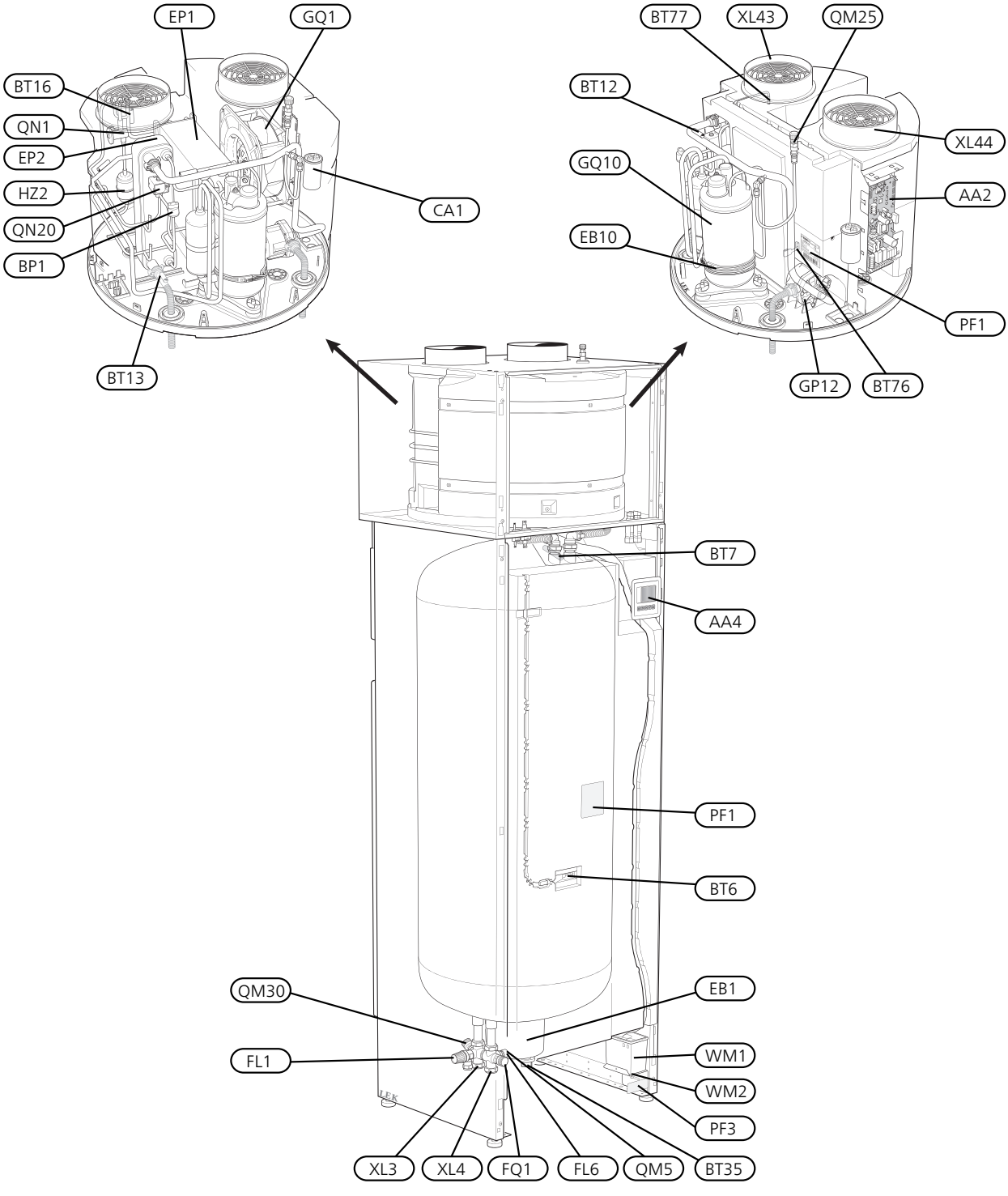


Heater section

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.



Component positions



List of components

PIPE CONNECTIONS

XL 3	Cold water connection
XL 4	Hot water connection
XL43	Connecting incoming air
XL44	Connecting outgoing air
WM2	Overflow water discharge[1]

HVAC COMPONENTS

FL1	Safety valve, water heater
FL6	Vacuum valve (only F110 Cu)
FQ1	Mixer valve, hot water
GP12	Circulation pump, charging
QM5	Vent screw (only F110 R)
QM25	Venting, hot water
QM30	Shut-off valve, hot water
WM1	Overflow cup
WM2	Overflow water discharge

SENSORS

BP1	High pressure pressostat
BT6	Temperature sensor, hot water, control
BT7	Temperature sensor, hot water, display
BT12	Temperature sensor, condenser out
BT13	Temperature sensor, heating medium return before condenser
BT16	Temperature sensor, evaporator
BT35	Thermostat
BT76	Temperature sensor, defrosting
BT77	Temperature sensor, incoming air

ELECTRICAL COMPONENTS

AA2	Base card
AA4	Display unit
CA1	Capacitor
EB1	Immersion heater
EB10	Compressor heater
FD1	Temperature limiter[1]

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

PF1	Rating plate
PF3	Serial number plate

[1]Not visible in the image

Designations according to standard EN 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 anti-clockwise to increase hot water temperature. Setting range 40–65 °C.

An overflow pipe should be routed from the safety valve to a suitable drain. The overflow pipe must be at least the same size as the safety valve. Route the overflow pipe from the safety valve, sloping along its entire length, and ensure that it is frost proof. The mouth of the overflow pipe must be visible and not placed close to electrical components.

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*
	Immersion heater
	Fan
	Under floor heating systems
	Radiator system
	Domestic hot water

SYSTEM DIAGRAM

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

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

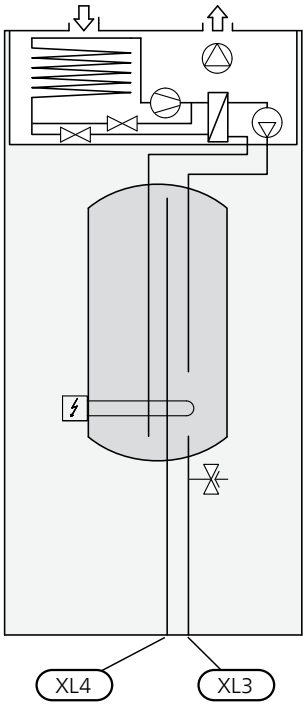
When the air passes through the evaporator, the refrigerant evaporates because of its low boiling point. In this way the energy in the air is transferred to the refrigerant.

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.

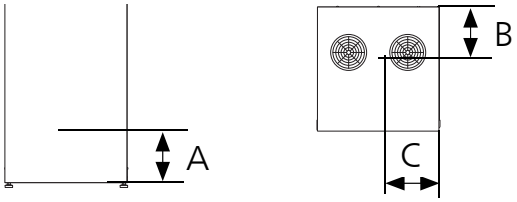


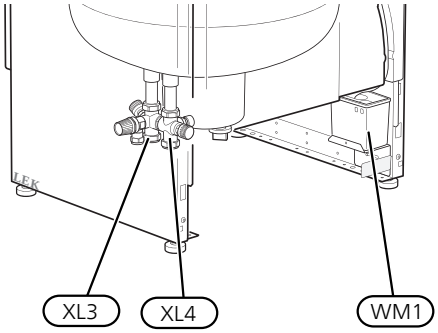
XL3	Cold water connection
XL4	Hot water connection

Caution

This is a principle of operation, differences may occur in the installation in question.

Dimensions and pipe connections





SETTING OUT DIMENSIONS

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

PIPE DIMENSIONS

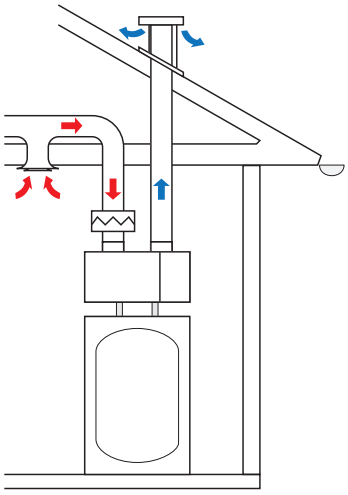
Connection		
XL3 Cold water ext Ø	(mm)	22
XL4 Hot water ext Ø	(mm)	22
WM2 Overflow water discharge	(mm)	32

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.

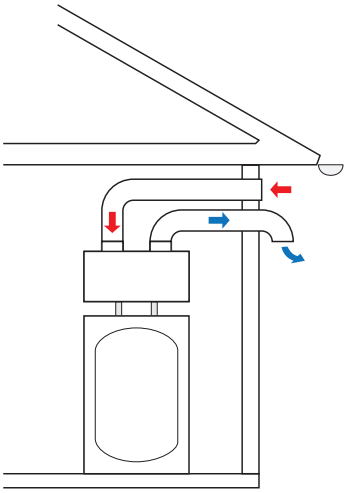
NOTE

An air filter (HQ12) (enclosed), minimum classification G2, is required on the exhaust air duct for 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.

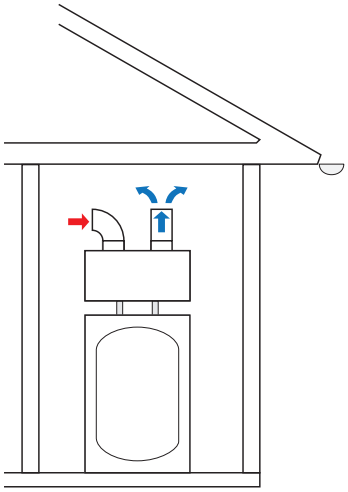
- The pressure drop in the system must not exceed 60 Pa. Factors affecting the pressure drop include the dimensions of the air ducts, the number of bends and the length of the ducts. Example: In a system with 160 mm air ducts and 7 bends, the ducts may be a maximum of 8 m in length.
- Attempt to find 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.



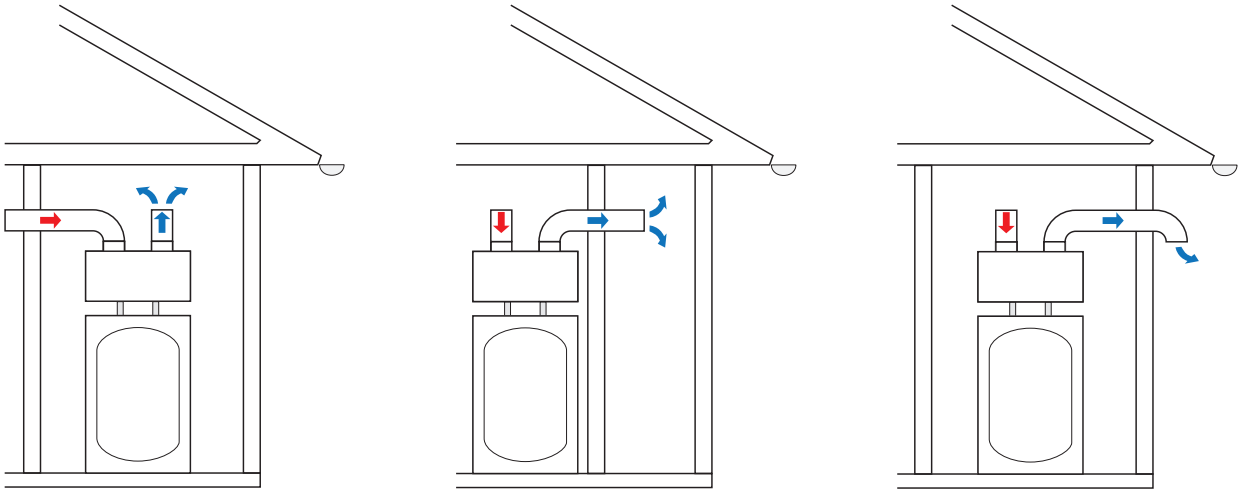
Connecting surrounding air

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.

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 ventilation connections

- Ventilation installation must be carried out in accordance with current norms and directives.
- Connections must be made via flexible hoses, which should be installed so that they are easy to replace.
- 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, silencers should be installed in the duct system. In the event of ventilation devices in noise-sensitive rooms, silencers must be installed.

  For installation with ambient air, the enclosed silencer has to be fitted in F110.
- 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.
- For installation with outdoor air, the air must be routed to the outdoor air duct through an outer wall grille in the facade. The outer wall grille must be installed so that it is protected from the weather and must be designed so that no rainwater and/or snow can penetrate the facade or follow the air into the duct.
- When positioning the outdoor air and extract air hood/grille for outdoor air installation, bear in mind that the two air flows must not short circuit, thus preventing the extract air from being drawn into F110 again.
- When positioning the exhaust air and extract air ducts for installation with ambient air, bear in mind that the two air flows must not short circuit, thus preventing the extract air from being drawn into F110 again.
- The heat pump must be provided with the enclosed air filter (HQ12).

EXHAUST AIR DUCT /KITCHEN FAN

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

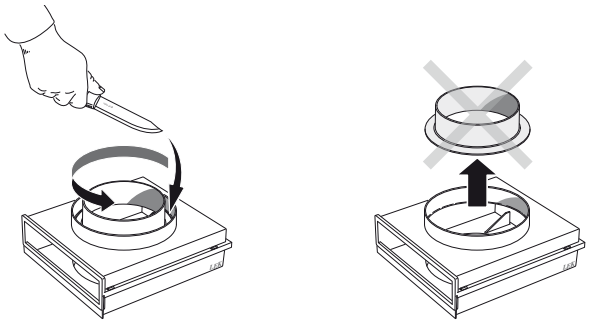
To prevent food vapour being transferred to F110 the distance between the kitchen fan and the exhaust air device must be considered. The distance should not be less than 1.5 m, but this can vary between different installations.

Always use a kitchen fan when cooking.

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



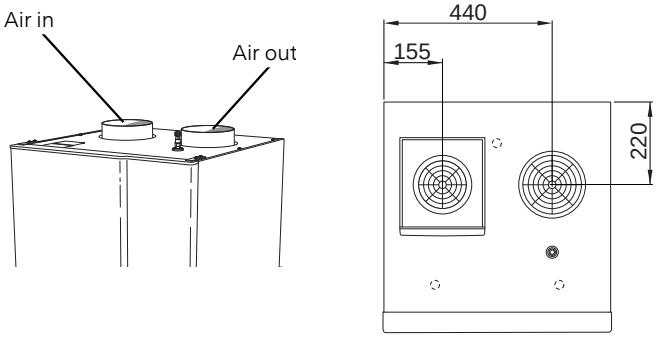
INSTALL THE CONNECTOR

If a filter solution other than that enclosed is used, the enclosed coupling must instead be mounted 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).

Dimension and ventilation connections



Ventilation flow (exhaust air)

Connect F110 so that all the exhaust air, except kitchen duct air (kitchen fan), passes through the evaporator (EP1) in the heat pump.

The ventilation flow must comply with the applicable national standards.

For optimum heat pump performance, the ventilation flow must not be less than 20 l/s (73 m³/h) at normal exhaust air temperature. At lower exhaust air temperatures, a higher flow is required.

Set the ventilation capacity in the heat pump's menu system (menu 5.1.5).

If the exhaust air temperature falls below 10°C or the outdoor air is below -10°C, the compressor is blocked and electric additional heat is permitted. Energy is not recovered from the exhaust air/outdoor 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.

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

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 40.
- 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^2.
- 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.

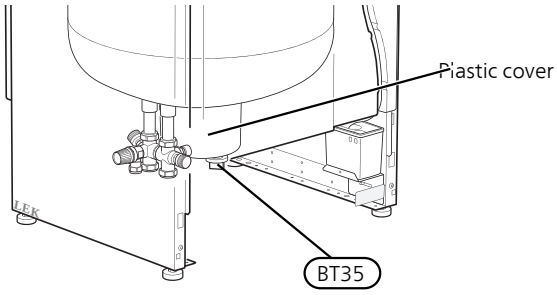
TEMPERATURE LIMITER

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

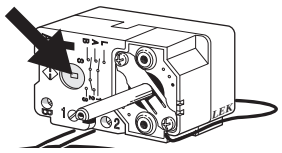
Resetting

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 connection cable (length approx. 2.8 m), which is fitted with a plug.

For permanent installations, the hot water heat pump must be connected with an isolator switch with a minimum breaking gap of 3 mm.

Other electrical equipment is connected at the factory.

> ⚠ *NOTE*
>
> The circulation pump must not be powered up until F110 is activated in the indoor module.

Optional connections

AUX INPUTS

Switch for external blocking off additional heat and/or compressor

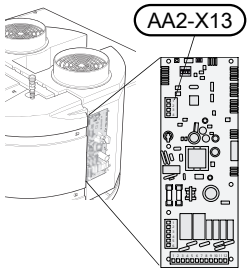
Blocking for addition heat and compressor is connected on two different AUX inputs.

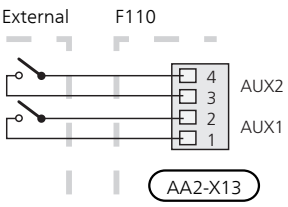
When external blocking of additional heat and/or the compressor is desired, this can be connected to terminal block X13 on the base board (AA2).

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.

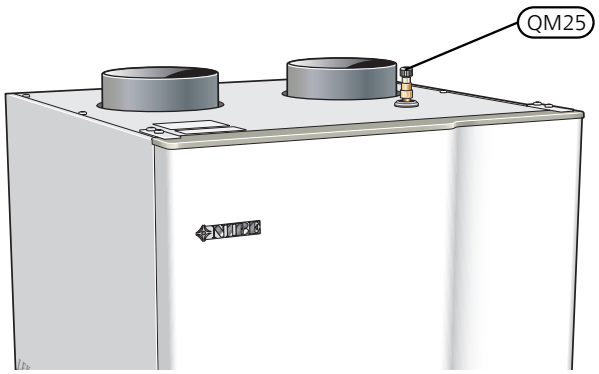
Filling and venting

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 carried out at the first start together with a run through of the heat pump's basic settings.

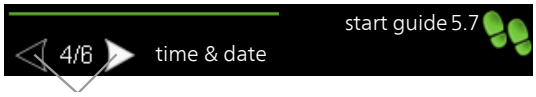
The start guide ensures that the start-up is carried out correctly and cannot be bypassed. The start guide can be started later in menu 5.7.

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.

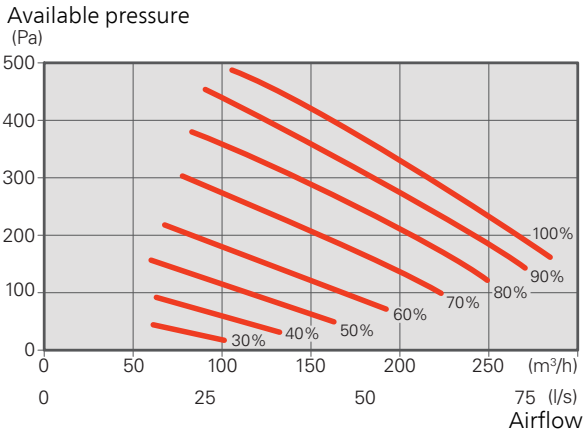
SETTING VENTILATION (EXHAUST AIR)

The ventilation must be set according to applicable standards. Set the fan speed in menu 5.1.5

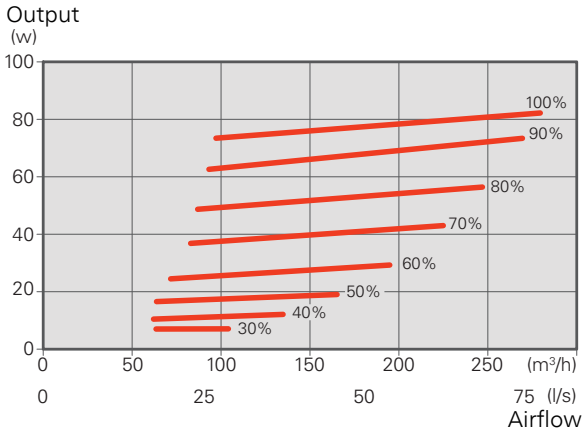
Even if ventilation is roughly set at installation it is important that a ventilation adjustment is ordered and permitted.

> ***NOTE***
>
> Order a ventilation adjustment to complete the setting.

Fan capacity

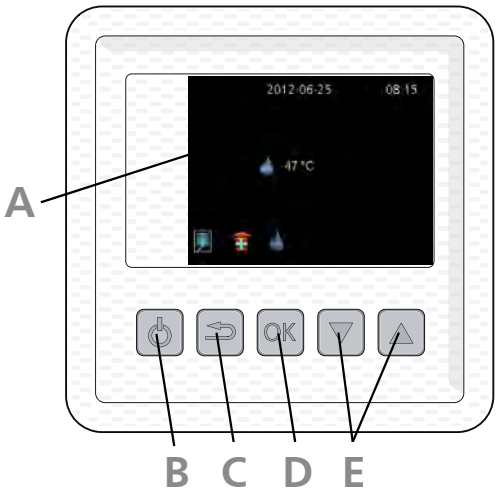


Power, fan



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.

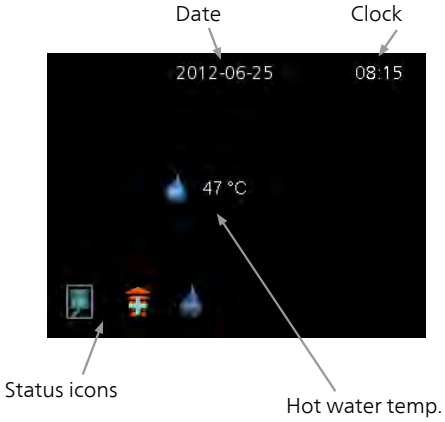
E UP AND DOWN BUTTONS

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.

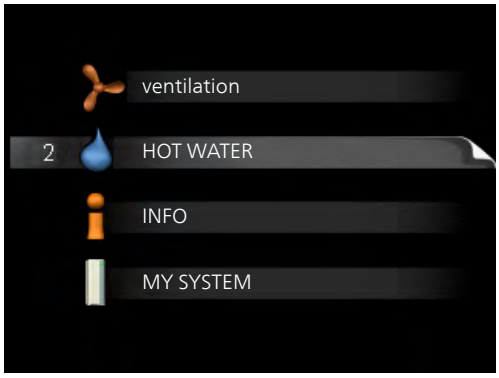


The information menu shows:

- 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 30.

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.

Symbol	*Description*
	This symbol appears when "scheduling" is activated in menu 2.3.
	This symbol appears when "holiday setting" is activated in menu 4.7.

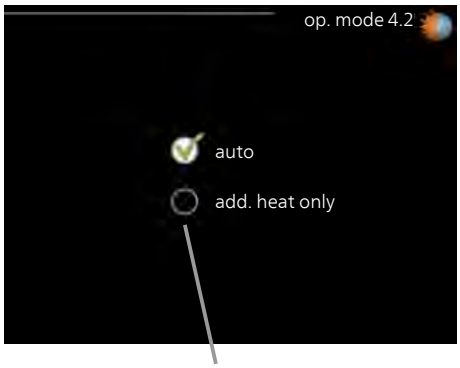
OPERATION

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



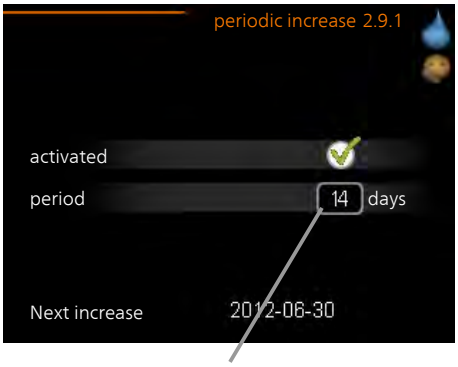
Selectable options

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. 

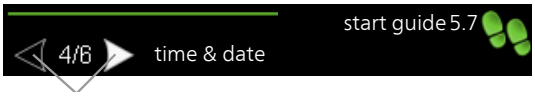
SCROLL THROUGH THE WINDOWS

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.

Current menu window

Number of windows in the menu

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.

Caution

The heat pump requires a minimum ventilation flow in order to work properly. An insufficient ventilation flow can result in an alarm and blocking of compressor operation.

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" and "one time increase"

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

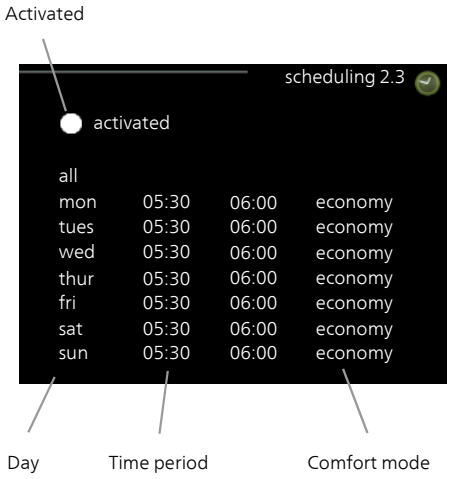
The difference between the selectable modes is the temperature of the hot tap water. Higher temperature means that the hot water lasts longer.

economy: This mode produces 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 is used to heat hot water as well as the compressor, which increases 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 scheduling 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 row "all" is used, all days in the period are set according to that row.

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.

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

TIP

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

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.

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 sp. exhaust air
		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 21 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.

NOTE

Do not quick start the compressor too many times over a short period of time, as this could 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 mixing valve (FQ1) fully (turn anticlockwise).
4. Open the safety valve (FL1) (turn slowly anticlockwise so that 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.

For faster draining of F110 Cu: Slacken off the vacuum valve (FL6) a few turns. A small amount of water may run out at the valve.

For faster draining of F110 R: Slacken off the vent screw (QM5) a few turns. A small amount of water may run out at the screw.

10 Disturbances in comfort

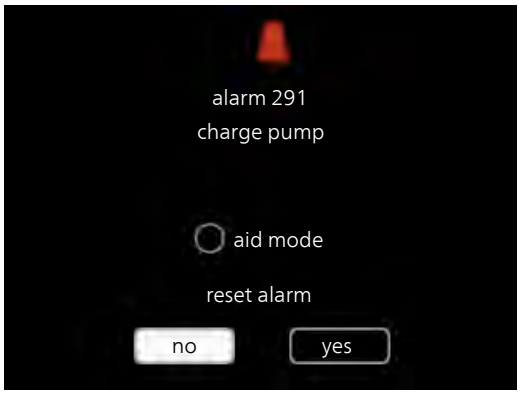
If F110 is not installed together with the indoor module, go directly to section .

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.

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 many cases it is sufficient 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 recurs, see the troubleshooting section (page 34).

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 e.g. 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.

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 F110.
- 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.

- Filter clogged (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)
  – See section "Low or a lack of ventilation".
- Applies to incoming air blocked (outdoor air installation)
  – Clean the grille.

LOW OR A LACK OF VENTILATION (EXHAUST AIR INSTALLATION)

- 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 and select "normal".

LOUD OR DISTURBING VENTILATION (EXHAUST AIR INSTALLATION)

- Filter (HQ10) blocked.
  – Clean or replace the filter.
- The ventilation is not adjusted.
  – Order/implement ventilation adjustment.
- Fan speed in forced mode.
  – Enter menu 1 and select "normal".

THE COMPRESSOR DOES NOT START

- There is no hot water requirement.
  – The heat pump does not call on hot water.
  – The heat pump module defrosts.

11 Accessories

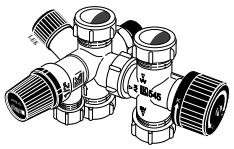
More info and images available at nibe.eu.

Separable valve connector

For external installation, relocation or separation.
Part no. 624 922

F110 STAINLESS STEEL

Part no. 624 923



Base extension EF 45

This accessory is used to create a larger connection area under F110.

Part no. 067 152
RSK no. 622 41 07

Top cabinet

Top cabinet that conceals the 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

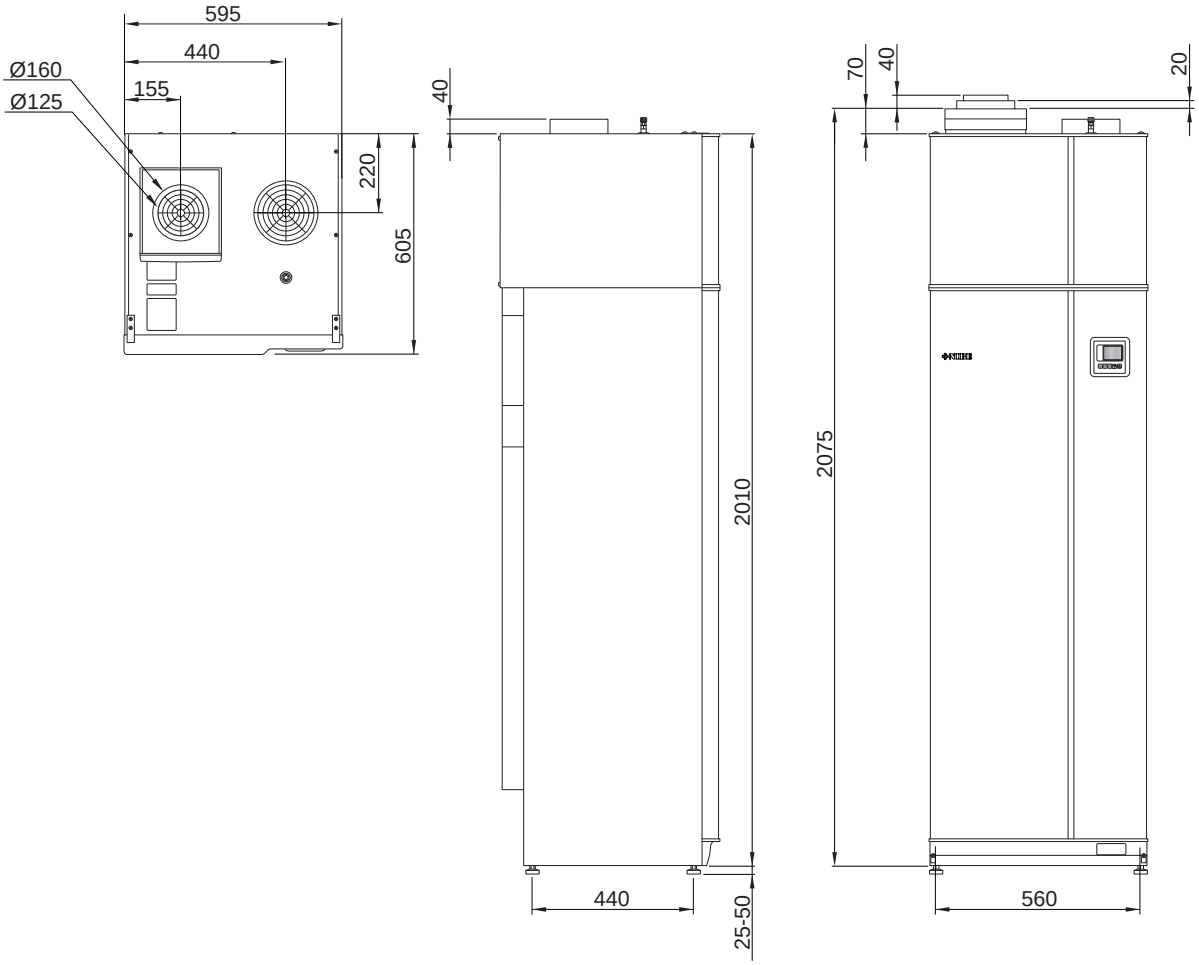
Part no. 067 522
RSK no. 625 12 99

HEIGHT 385-635 MM

Part no. 089 758
RSK no. 625 06 89

12 Technical data

Dimensions and setting-out coordinates



Technical specifications

1x230 V		*Exhaust air*	*Outdoor air*	*Surrounding air*
Output data according to EN 16 147				
Capacity (P_H)/COP	kW/-	1.32 / 2.89[1]	1.08 / 2.36[2]	1.32 / 3.27[3]
Additional power				
Output immersion heater	kW	1.3		
Electrical data				
Rated voltage	V	230 V ~ 50 Hz		
Max operating current	A	9.1		
Min. fuse rating	A	10		
Driving power circulation pump	W	5-20		
Driving power fan	W	20-75		
Enclosure class		IP21		
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		
Air flow requirement				
Min. air flow at exhaust air temperature below 10°C	l/s	-	83	-
Min. air flow at exhaust air temperature at least 10°C	l/s	25	42	25
Temperature range for compressor operation	°C	10 - 37	-10 - 37	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				
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		

1 A20(12), luftflöde 50 l/s (180 m^3/h)

2 A7(6), luftflöde 70 l/s (250 m^3/h)

3 A20(12), luftflöde 50 l/s (180 m^3/h)

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.

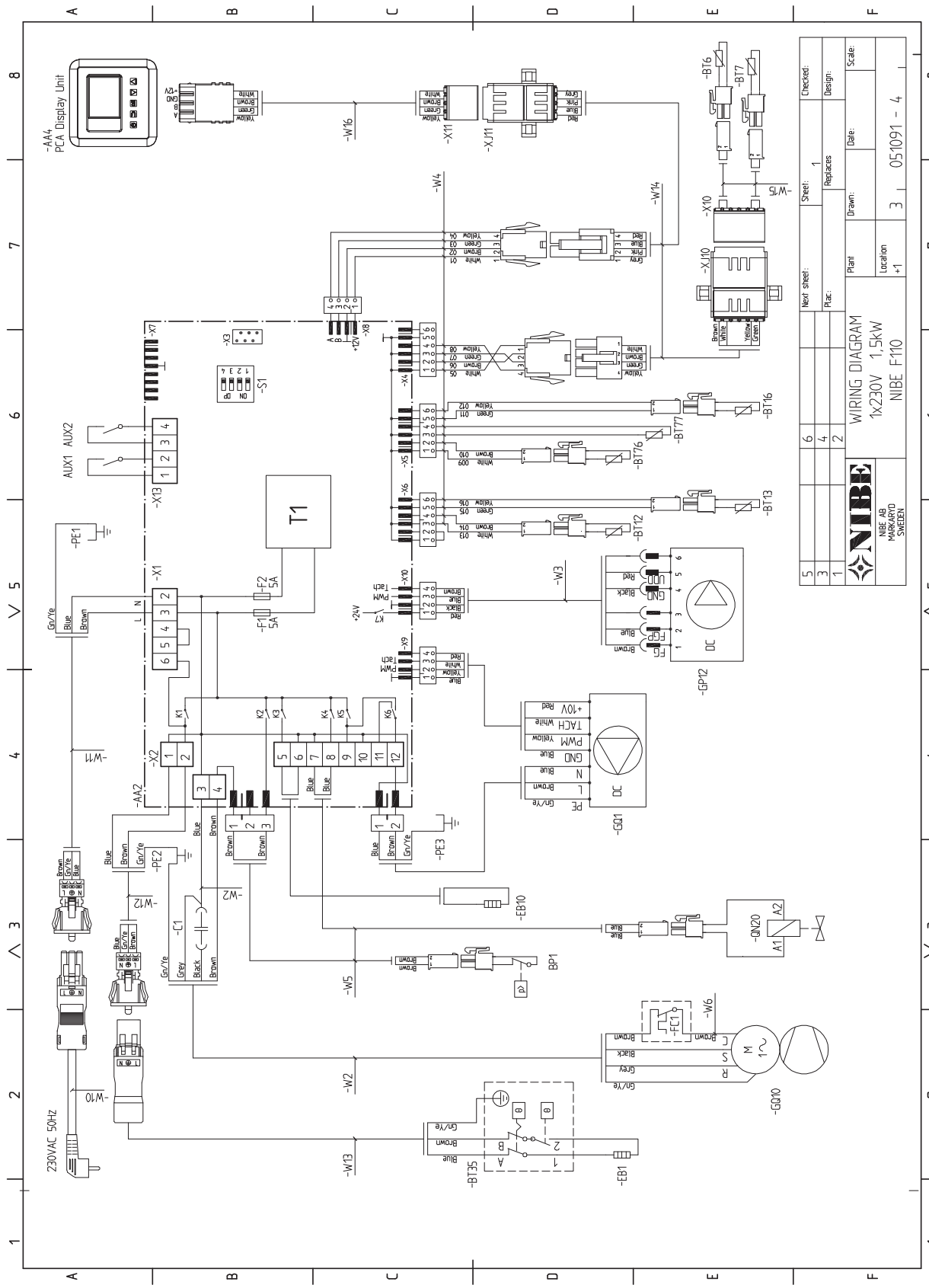
Other 1x230 V		*Copper*	*Stainless*
Water heater			
Volume, hot water heater	litre	265	
Min pressure in water heater	MPa/bar	0.2 / 2.0	
Max pressure in hot water heater	MPa/bar	1.0 / 10.0	
Safety valve deploys at	MPa/bar	0.9 / 9.0	1.0 / 10.0
Max temperature with compressor	°C	56	
Max temperature with additional heat	°C	95	
Capacity of hot water heating according to EN 16 147[1]			
Tap volume 40 °C at Normal comfort (V_{max})	litre	365	
Idle loss at Normal comfort (P_{es})	W	42	
Dimensions and weight			
Width	mm	600	
Depth	mm	605	
Height		2,030 - 2,060	
Required ceiling height	mm	2,110	
Weight	kg	144	127
Substances according to Regulation (EC) no. 1907/2006, Article 33 (REACH)		Lead in brass components	
RSK No.		625 12 53	-
Part No.		066 083	066 025

1 A20(12), air flow 50 l/s (180 m³/h). Comfort mode, normal.

Energy labelling

Supplier		*NIBE AB*		
Model		*F110 Exhaust air*	*F110 Outdoor air*	*F110 Surrounding air*
Declared load profile		**XL**	**XL**	**XL**
Water heating energy efficiency class, average climate		**A**	**A**	**A**
Water heating energy efficiency, average climate, $_{wh}$	%	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, η_{wh}	%	116	82	131
Water heating energy efficiency, warm climate, η_{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



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T

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