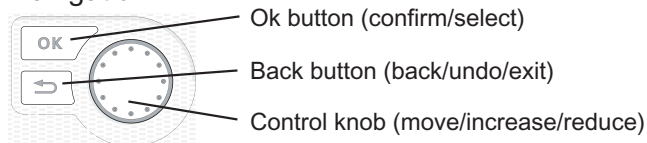


Installer manual
NIBE™ F1226
Ground source heat pump

Quick guide

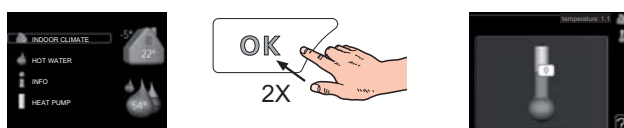
Navigation



A detailed explanation of the button functions can be found on page 33.

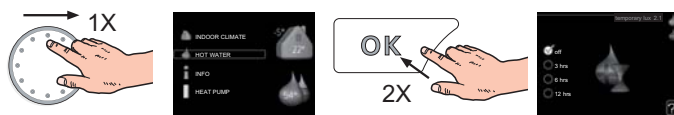
How to scroll through menus and make different settings is described on page 35.

Set the indoor climate



The mode for setting the indoor temperature is reached, when in the start mode in the main menu, by pressing the OK button twice. Read more about the settings on page 37.

Increase hot water volume



To temporarily increase the amount of hot water, first turn the control knob to mark menu 2 (water droplet) and then press the OK button twice. Read more about the settings on page 41.

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 55 for instructions.

Table of Contents

1 Important information	2		
Safety information	2		
2 Delivery and handling	5		
Transport	5		
Assembly	5		
Supplied components	6		
Removing the covers	6		
Removing parts of the insulation	7		
3 The heat pump design	8		
General	8		
Electrical cabinets	9		
Cooling section	11		
4 Pipe connections	12		
General	12		
Dimensions and pipe connections	13		
Brine side	13		
Heating medium side	14		
Hot water heater	14		
Docking alternatives	15		
5 Electrical connections	17		
General	17		
Connections	19		
Settings	20		
Optional connections	22		
Connecting accessories	23		
6 Commissioning and adjusting	24		
Preparations	24		
		Filling and venting	24
		Start guide	25
		Post adjustment and venting	30
7 Control - Introduction	33		
Display unit	33		
Menu system	34		
8 Control - Menus	37		
Menu 1 - INDOOR CLIMATE	37		
Menu 2 - HOT WATER	41		
Menu 3 - INFO	42		
Menu 4 - HEAT PUMP	43		
Menu 5 - SERVICE	45		
9 Service	49		
Service actions	49		
10 Disturbances in comfort	55		
Info-menu	55		
Manage alarm	55		
Troubleshooting	55		
11 Accessories	57		
12 Technical data	58		
Dimensions and setting-out coordinates	58		
Technical specifications	59		
Electrical circuit diagram	62		
Item register	72		

1 Important information

Safety information

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

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

Children should be supervised to ensure that they do not play with the appliance.

Rights to make any design or technical modifications are reserved.

©NIBE 2011.

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

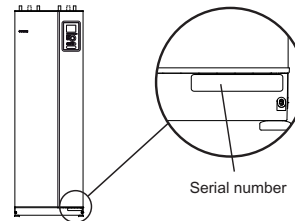
F1226 is CE marked and fulfils IP21.

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 the product can be touched by hand, 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.

Serial number

The serial number can be found at the bottom right of the front cover and in the info menu (menu 3.1).



Caution

Always give the product's serial number 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. Fill in the page for information about installation data in the User manual.

✓	Description	Notes	Signature	Date
	Brine (page 13)			
	System flushed			
	System vented			
	Antifreeze			
	Level/Expansion vessel			
	Particle filter			
	Safety valve			
	Shut off valves			
	Circulation pump setting			
	Heating medium (page 14)			
	System flushed			
	System vented			
	Expansion vessel			
	Particle filter			
	Safety valve			
	Shut off valves			
	Circulation pump setting			
	Electricity (page 17)			
	Fuses heat pump			
	Fuses property			
	Outside sensor			
	Safety breaker			
	Earth circuit-breaker			
	Setting of emergency mode thermostat			
	Miscellaneous			
	Guarantee submitted			

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 AG, Winterthurerstrasse 710, CH-8247 Flurlingen

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 Benátky 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

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 Energietechniek B.V., Postbus 2, NL-4797 ZG WILLEMSTAD (NB)

Tel: 0168 477722 Fax: 0168 476998 E-mail: info@nibenl.nl www.nibenl.nl

NO ABK AS, Brobekkveien 80, 0582 Oslo, Postadresse: Postboks 64 Vollebekk, 0516 Oslo

Tel. sentralbord: +47 02320 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-evan.ru

SE NIBE AB Sweden, Box 14, Hannabadsvägen 5, SE-285 21 Markaryd

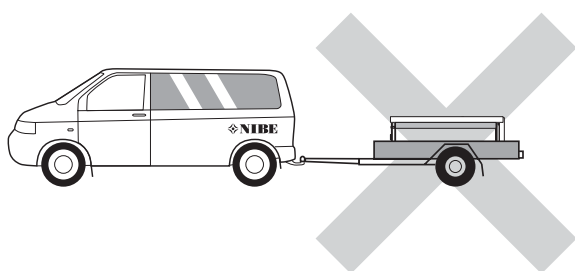
Tel: +46-(0)433-73 000 Fax: +46-(0)433-73 190 E-mail: info@nibe.se www.nibe.se

For countries not mention in this list, please contact Nibe Sweden or check www.nibe.eu for more information.

2 Delivery and handling

Transport

F1226 should be transported and stored vertically in a dry place. When being moved into a building, F1226 may be leant back 45 °. **Note!** Can be tail heavy.



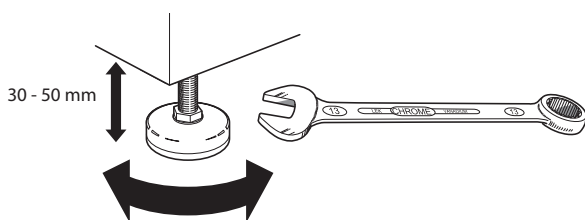
Pulling out the cooling module

To simplify transport and service, the heat pump can be separated by pulling the cooling module out from the cabinet.

See page 51 for instructions about the separation.

Assembly

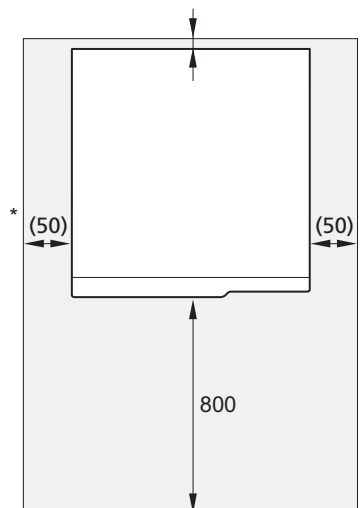
- Position the heat pump on a firm base that can bear its weight, preferably on a concrete floor or foundation. Use the heat pump's adjustable feet to obtain a horizontal and stable set-up.



- The area where the heat 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.

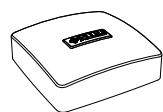
Installation area

Leave a space of 800 mm in front of the heat pump. Approx 50 mm free space is required in order to open the side hatches. The hatches do not need to be opened during service, all service on F1226 can be carried out from the front. Leave space between the heat pump and wall behind (and any routing of supply cables and pipes) to reduce the risk reproduction of any vibration.

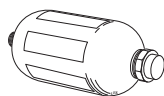


* A normal installation needs 300 - 400 mm (any side) for connection equipment, i.e. level vessel, valves and electrical equipment.

Supplied components



Outside sensor



Level vessel



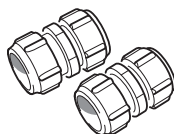
Particle filter



Safety valve
(0.3 MPa) (3 bar)



O-rings



Conex connectors

5-8 kW

2 x (ø28 x G25)

2 x (ø22 x G20)

11 kW

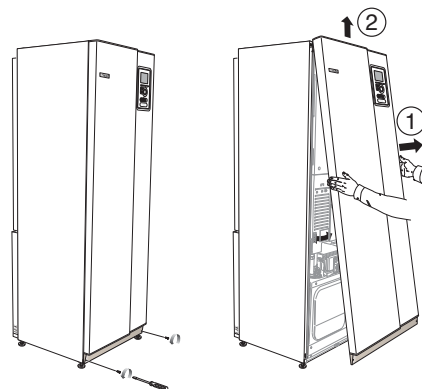
4 x (ø28 x G25)

Location

The kit of supplied items is placed in packaging on top of the heat pump.

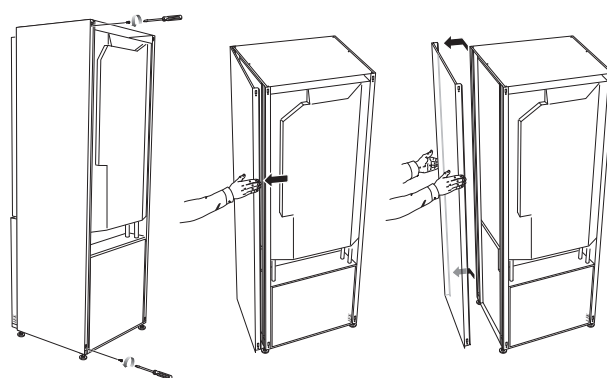
Removing the covers

Front cover



1. Remove the screws from the lower edge of the front cover.
2. Lift the cover out at the bottom edge and up.

Side covers



The side covers can be removed to facilitate the installation.

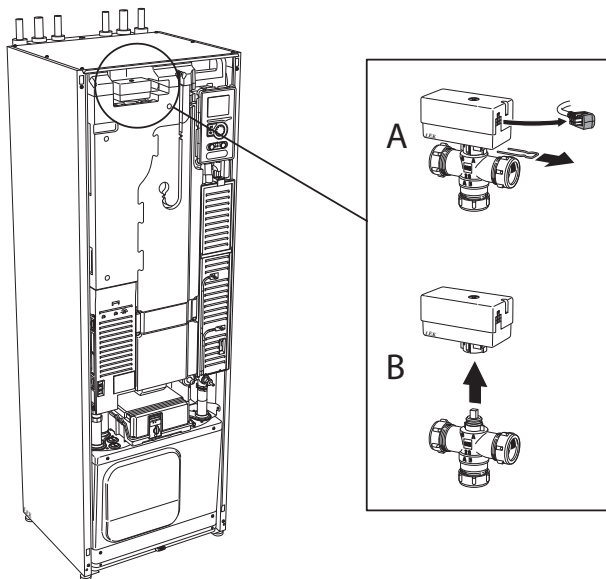
1. Remove the screws from the upper and lower edges.
2. Twist the cover slightly outward.
3. Move the cover backwards and slightly to the side.
4. Pull the cover to one side.
5. Pull the cover forwards.

Removing parts of the insulation

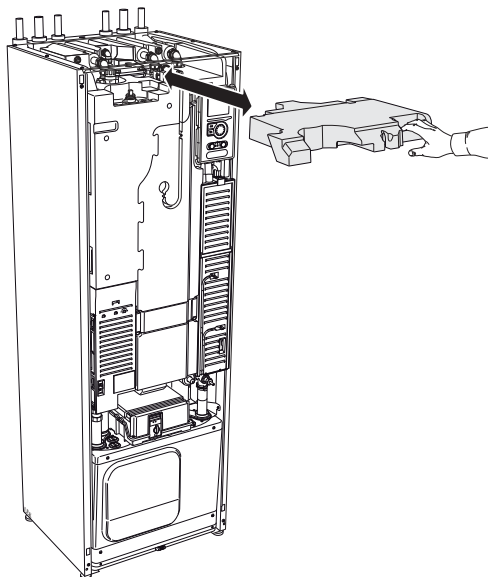
Parts of the insulation can be removed to facilitate the installation.

Insulation, top

1. Disconnect the cable from the motor and remove the motor from the shuttle valve as illustrated.



2. Grip the handle and pull straight out as illustrated.



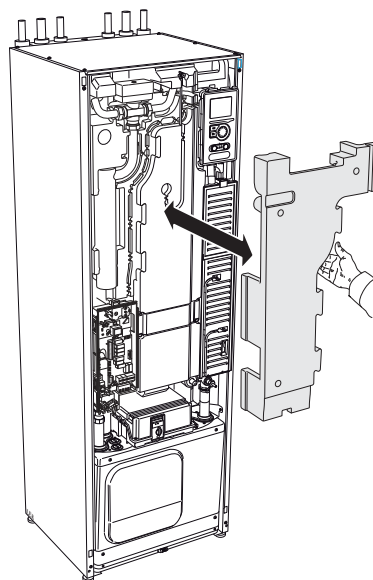
Insulation, immersion heater



NOTE

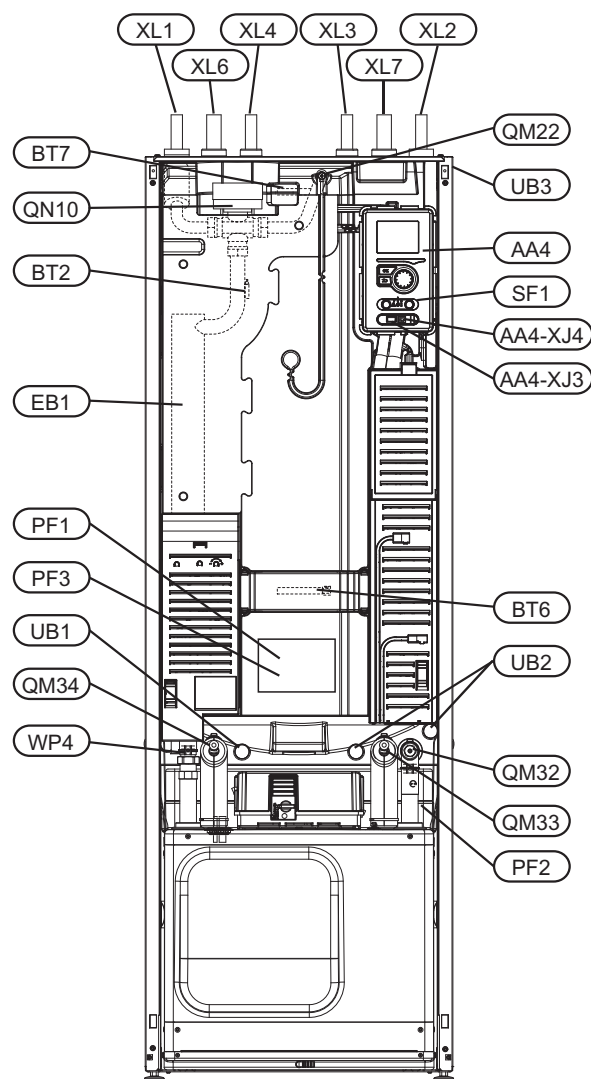
Electrical installation and service must be carried out under the supervision of a qualified electrician. Electrical installation and wiring must be carried out in accordance with the stipulations in force.

1. Remove the cover of the junction box according to the description on page 18.
2. Grip the handle and pull the insulation carefully towards you as illustrated.

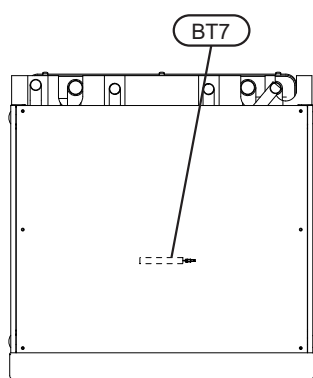


3 The heat pump design

General



View from above



Pipe connections

- XL 1 Connection, heating medium flow
- XL 2 Connection, heating medium return
- XL 3 Connection, cold water
- XL 4 Connection, hot water
- XL 5 Connection, HWC*
- XL 6 Connection, brine in
- XL 7 Connection, brine out

* Only applies to stainless steel vessels.

HVAC components

- QM 22 Venting, coil
- QM 32 Shut off valve, heating medium return
- QM 33 Shut off valve, brine out
- QM 34 Shut-off valve, brine in
- QN 10 Shuttle valve, climate system/water heater
- WP 4 Pipe connection, heating medium flow

Sensors etc.

- BT 1 Outside sensor
- BT 2 Temperature sensors, heating medium flow
- BT 6 Temperature sensor, hot water charging
- BT 7 Temperature sensor, hot water top

Electrical components

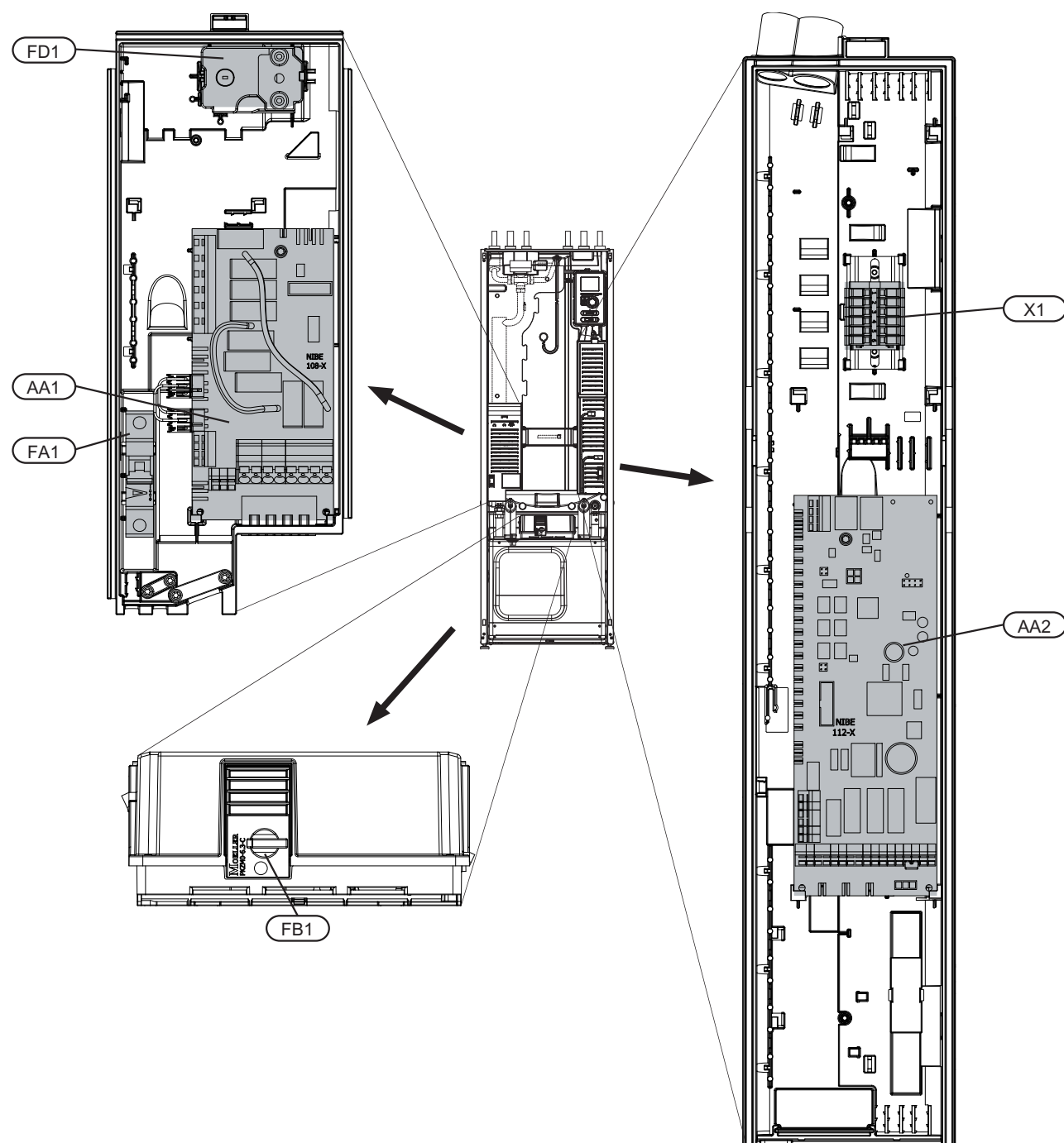
- AA 4 Display unit
- AA4-XJ3 USB outlet (no function)
- AA4-XJ4 Service outlet (No function)
- EB 1 Immersion heater
- SF 1 Switch

Miscellaneous

- PF 1 Rating plate
- PF 2 Type plate, cooling section
- PF 3 Serial number plate
- UB 1 Cable gland, incoming electricity
- UB 2 Cable gland
- UB 3 Cable gland, rear side, sensor

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

Electrical cabinets

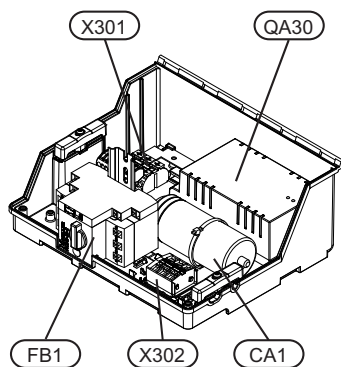


Electrical components

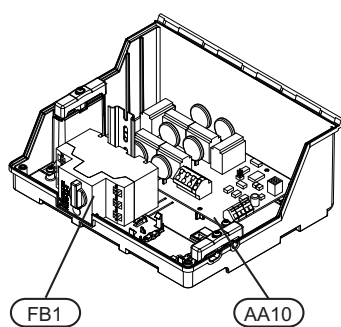
- AA 1 Immersion heater card
- AA 2 Base card
- FA 1 Miniature circuit-breaker
- FB 1 Motor cut-out*
- FD 1 Temperature limiter/Emergency mode thermostat
- X 1 Terminal block

* 5 kW has auxiliary switch for motor cut-out.

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



3x400 V 5 kW



3x400 V 6-11 kW

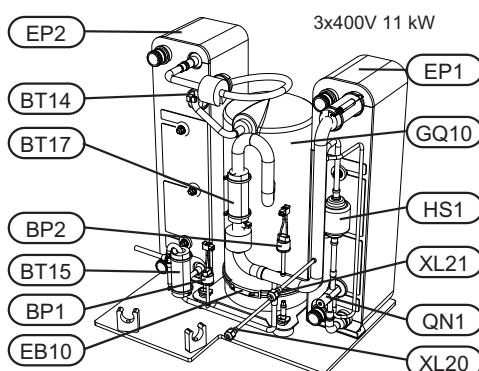
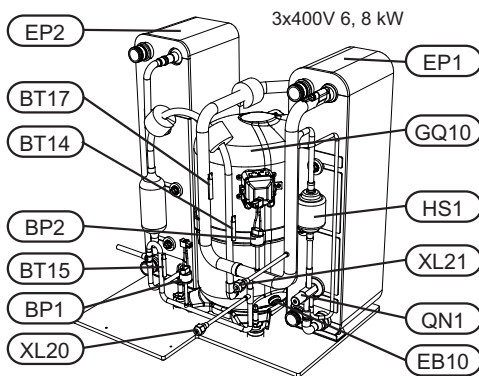
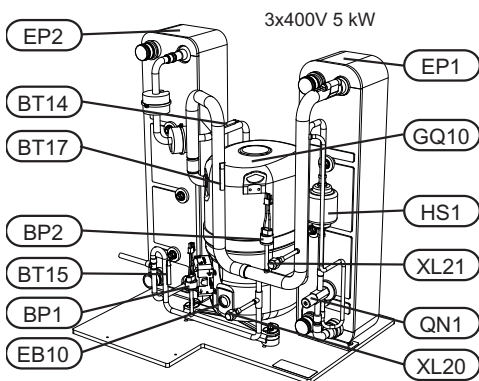
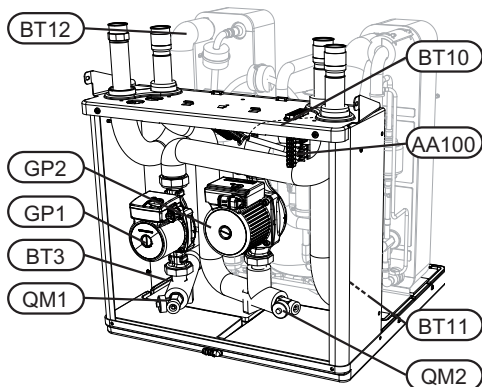
Electrical components

AA 10	Soft-start card
CA 1	Capacitor
FB 1	Motor cut-out*
QA 30	Soft-starter
X 301	Terminal block
X 302	Terminal block

* 5 kW has auxiliary switch for motor cut-out.

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

Cooling section



Pipe connections

- XL 20 Service connection, high pressure
- XL 21 Service connection, low pressure

HVAC components

- GP 1 Circulation pump
- GP 2 Brine pump
- QM 1 Drainage, climate system
- QM 2 Draining, brine side

Sensors etc.

- BP 1 High pressure pressostat
- BP 2 Low pressure pressostat
- BT 3 Temperature sensors, heating medium return
- BT 10 Temperature sensor, brine in
- BT 11 Temperature sensor, brine out
- BT 12 Temperature sensor, condenser supply line
- BT 14 Temperature sensor, hot gas
- BT 15 Temperature sensor, fluid pipe
- BT 17 Temperature sensor, suction gas

Electrical components

- AA 100 Joint card
- EB 10 Compressor heater

Cooling components

- EP 1 Evaporator
- EP 2 Condenser
- GQ 10 Compressor
- HS 1 Drying filter
- QN 1 Expansion valve

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

4 Pipe connections

General

Pipe installation must be carried out in accordance with current norms and directives. F1226 can operate with a return temperature of up to 56 °C and an outgoing temperature from the heat pump of 70 (63 °C with only the compressor).

F1226 is not equipped with external shut off valves; these must be installed to facilitate any future servicing.



NOTE

The pipe system needs to be flushed out before the heat pump is connected so that debris cannot damage component parts.

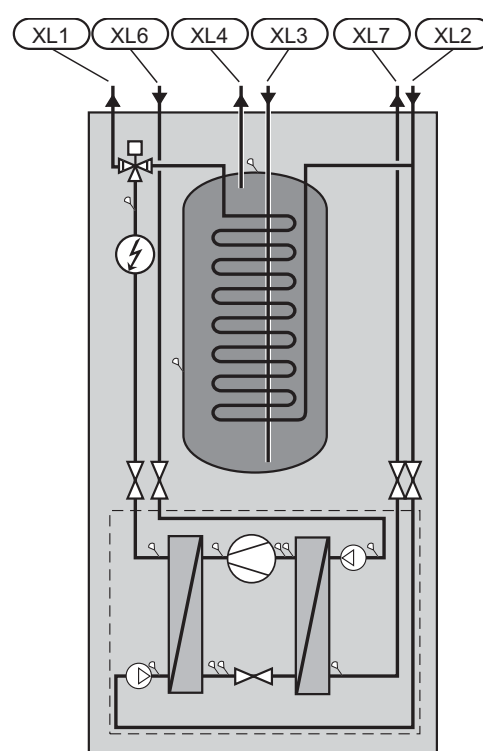
Symbol key

Symbol	Meaning
	Venting valve
	Shut-off valve
	Non-return valve
	Shunt / shuttle valve
	Safety valve
	Trim valve
	Temperature sensor
	Level vessel
	Pressure gauge
	Circulation pump
	Particle filter
	Auxiliary relay
	Fan
	Compressor
	Heat exchanger

System diagram

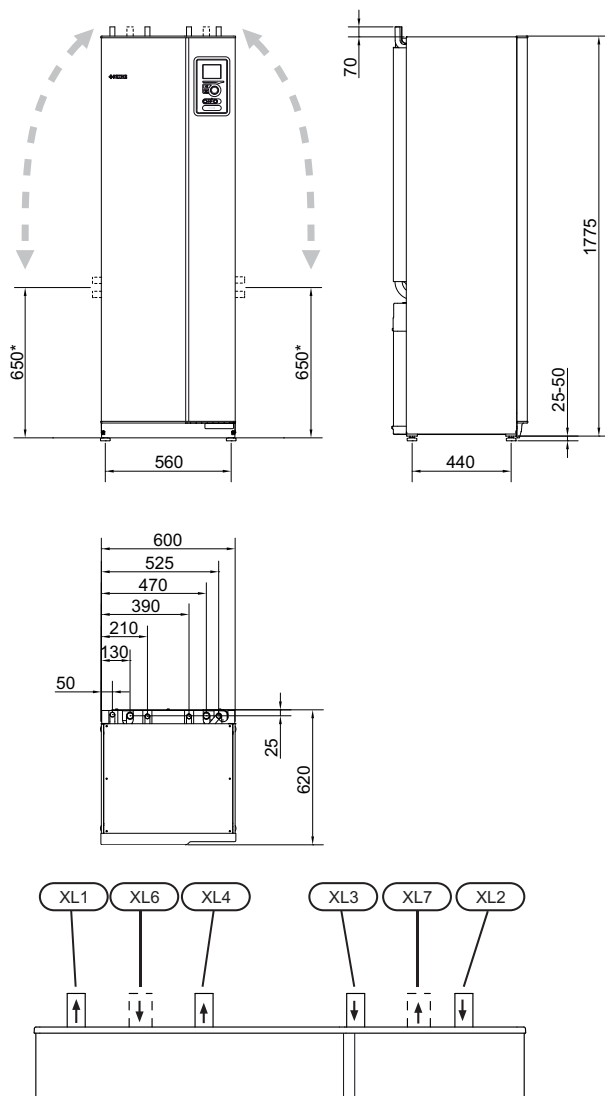
F1226 consists of a heat pump, water heater, electrical module, circulation pumps and a control system. F1226 is connected to the brine and heating medium circuits.

In the heat pump evaporator, the brine (water mixed with anti-freeze, glycol or ethanol) releases its energy to the refrigerant, which is vaporised in order to be compressed in the compressor. The refrigerant, of which the temperature has now been raised, is passed to the condenser where it gives off its energy to the heating medium circuit and, if necessary, to the water heater. If there is a greater need for heating/hot water than the compressor can provide there is an integrated immersion heater.



- XL 1 Connection, heating medium flow
- XL 2 Connection, heating medium return
- XL 3 Connection, cold water
- XL 4 Connection, hot water
- XL 6 Connection, brine in
- XL 7 Connection, brine out

Dimensions and pipe connections



Pipe dimensions

Connection		5-8 kW	11 kW
(XL6)/(XL7) Brine in/out ext Ø	(mm)	28	
(XL1)/(XL2) Heating medium flow/return ext Ø	(mm)	22	28
(XL3)/(XL4) Cold/hot water Ø	(mm)	22	

* Can be angled for side connection.

Brine side

Collector

Type	Surface soil heat, recommended collector length (m)	Rock heat, recommended active drilling depth (m)
5 kW	200-300	70-90
6 kW	250-400	90-110
8 kW	325-2x250	120-145
11 kW	2x250-2x350	180-210

Applies to PEM hose 40x2.4 PN 6.3.

These are rough example values. At installation the correct calculations must be made according to local conditions.



Caution

The length of the collector hose varies depending on the rock/soil conditions, climate zone and on the climate system (radiators or underfloor heating).

Max length per coil for the collector should not exceed 400 m.

In those cases where it is necessary to have several collectors, these should be connected in parallel with the possibility for adjusting the flow of the relevant coil.

For surface soil heat, the hose should be buried at a depth determined by local conditions and the distance between the hoses should be at least 1 metre.

For several bore holes, the distance between the holes must be determined according to local conditions.

Ensure the collector hose rises constantly towards the heat pump to avoid air pockets. If this is not possible, airvents should be used.

As the temperature of brine system can fall below 0 °C it must be protected against freezing down to -15 °C. 1 litre of ready mixed brine per meter of collector hose (applies when using PEM-hose 40x 2.4 PN 6.3) is used as a guide value when making the volume calculation.

Side connection

It is possible to angle the brine connections, for connection to the side instead of top connection.

To angle out a connection:

1. Disconnect the pipe at the top connection.
2. Angle the pipe in the desired direction.
3. If necessary, cut the pipe to the desired length.

Connecting the brine side

- Insulate all indoor brine pipes against condensation.

- The level vessel must be installed as the highest point in the brine system on the incoming pipe before the brine pump (Alt. 1).

If the level vessel cannot be placed at the highest point an expansion vessel must be used (Alt. 2).

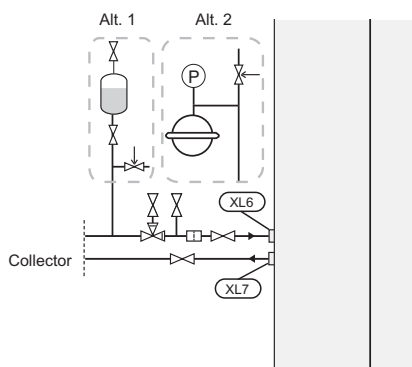


NOTE

Note that condensation may drip from the level vessel. Position the vessel so that this does not harm other equipment.

- Details of the antifreeze used must be shown on the level vessel.
- Install the supplied safety valve under the level vessel as illustrated. The entire length of the overflow water pipe from the safety valves must be inclined to prevent water pockets and must also be frost proof.
- Install shut off valves as close to the heat pump as possible.
- Fit the supplied particle filter on the incoming pipe.

In the case of connection to an open groundwater system, an intermediate frost-protected circuit must be provided, because of the risk of dirt and freezing in the evaporator. This requires an extra heat exchanger.

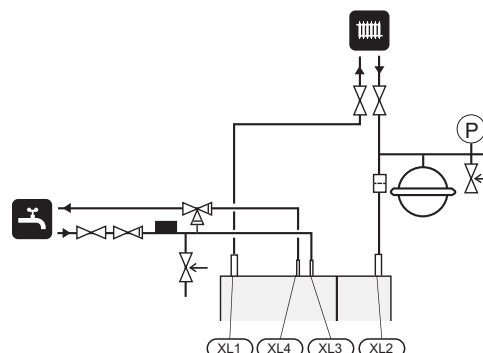


Heating medium side

Connecting the climate system

A climate system is a system that regulates indoor comfort with the help of the control system in F1226 and for example radiators, underfloor heating/cooling, fan convectors etc.

- Install all required safety devices, shut-off valves (as close to the heat pump as possible), and supplied particle filter.
- The safety valve must have a maximum 0.25 MPa (2.5 bar) opening pressure and be installed on the heating medium return as illustrated. The entire length of the overflow water pipe from the safety valves must be inclined to prevent water pockets and must also be frost proof.
- When connecting to a system with thermostats on all radiators, a relief valve must be fitted, or some of the thermostats must be removed to ensure sufficient flow.



Hot water heater

Connecting the hot water heater

- The hot water heater in the heat pump must be supplied with necessary set of valves.
- The mixing valve must be installed if the setting is changed so that the temperature can exceed 60 °C. The setting is made in menu 5.1.1 (page 45)
- The safety valve must have a maximum 1.0 MPa (10.0 bar) opening pressure and be installed on the incoming domestic water line as illustrated. The entire length of the overflow water pipe from the safety valves must be inclined to prevent water pockets and must also be frost proof.

Docking alternatives

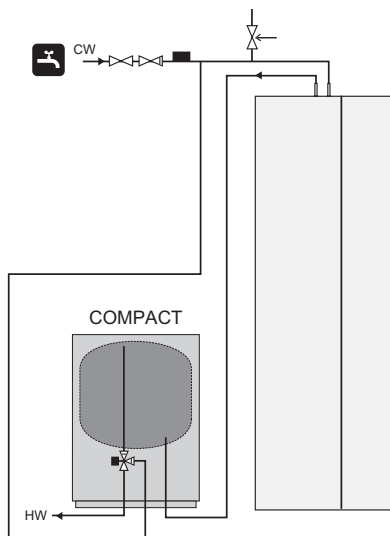
F1226 can be connected in several different ways, some of which are shown below.

Further option information is available at www.nibe.eu and in the respective assembly instructions for the accessories used. See page 57 for a list of the accessories that can be used with F1226.

Extra electric hot water heater

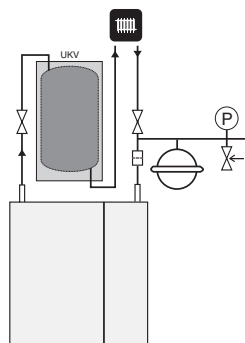
The heat pump should be supplemented with an electric water heater, for example NIBE COMPACT, if a whirlpool or other significant consumer of hot water is installed.

- The valve connection on COMPACT can be separated. The mixing valve remains on COMPACT and the remaining valve connector can be used for incoming cold water in F1226.



Buffer vessel

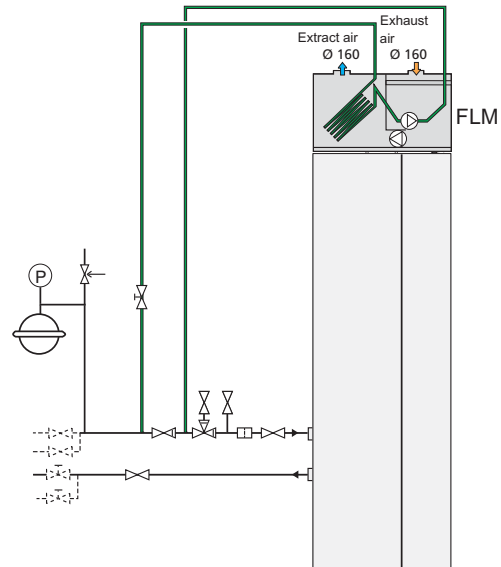
If the climate system volume is too small for the heat pump output, the radiator system can be supplemented with a buffer vessel, for example NIBE UKV.



Ventilation recovery

The installation can be supplemented with the exhaust air module FLM to provide ventilation recovery.

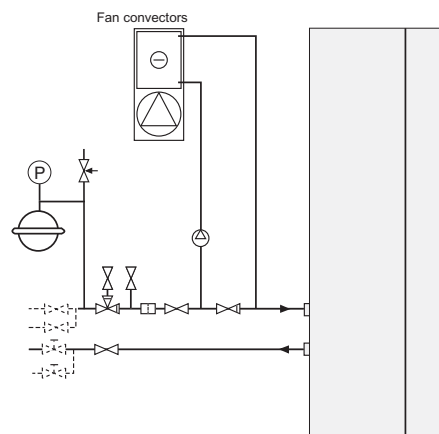
- Pipes and other cold surfaces must be insulated with diffusion-proof material to prevent condensation.
- The brine system must be supplied with a pressure expansion vessel (CM3). If there is a level vessel (CM2) this should be replaced.



Free cooling

The installation can be supplemented with fan convectors, for example, in order to allow connections for free cooling.

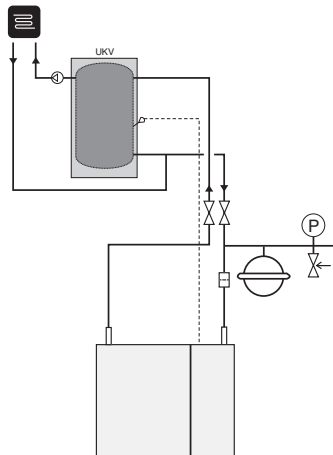
- Pipes and other cold surfaces must be insulated with diffusion-proof material to prevent condensation.
- Where the cooling demand is high, fan convectors with drip trays and drain connection are needed.
- The brine system must be supplied with a pressure expansion vessel (CM3). If there is a level vessel (CM2) this should be replaced.



Under floor heating systems

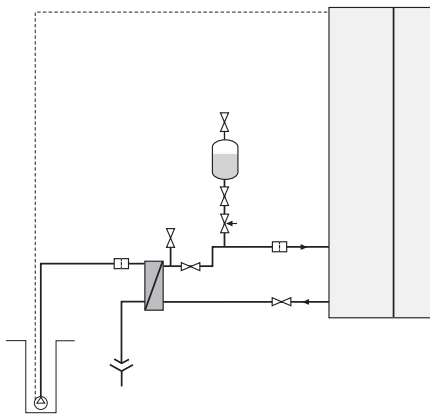
The external circulation pump is dimensioned for the under floor heating system's demand.

If the climate system volume is too small for the heat pump output, the underfloor heating system can be supplemented with a buffer vessel, for example NIBE UKV.



Ground water system

An intermediate heat exchanger is used to protect the heat pump's exchanger from dirt. The water is released into a buried filtration unit or a drilled well. This docking alternative requires the EXC 40 accessory.



5 Electrical connections

General

All electrical equipment except for the outdoor temperature sensors has been connected at the factory.

- Disconnect the heat pump before insulation testing the house wiring.
- If the building is equipped with an earth-fault breaker, F1226 should be equipped with a separate one.
- If a miniature circuit breaker is used this should have at least motor characteristic "C". See page 59 for fuse size.
- For the heat pump wiring diagram, see page 62.
- Communication and sensor cables to external connections must not be laid close to high current cables.
- The minimum area of communication and sensor cables to external connections must be 0.5 mm² up to 50 m, for example EKKX or LiYY or equivalent.
- When cable routing in F1226, cable grommets (e.g. UB1-UB3, marked in image) must be used. In UB1-UB3 the cables are inserted through the heat pump from the back to the front.



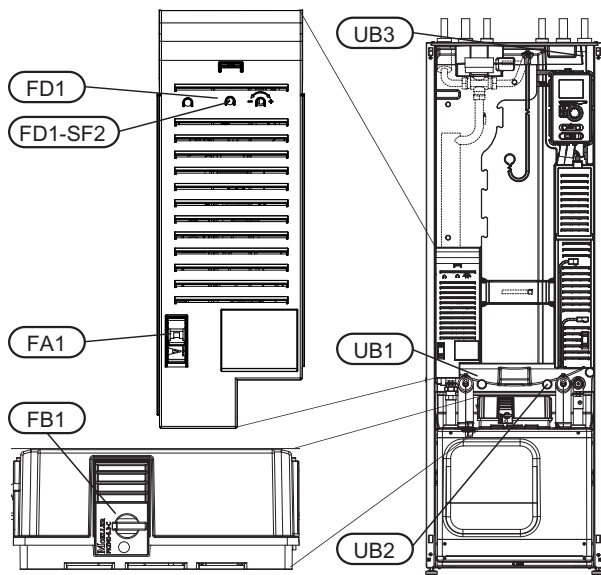
NOTE

The switch (SF1) must not be moved to "I" or "△" until the boiler has been filled with water. Otherwise the temperature limiter, thermostat, compressor and the immersion heater can be damaged.



NOTE

Electrical installation and service must be carried out under the supervision of a qualified electrician. Cut the current with the circuit breaker before carrying out any servicing. Electrical installation and wiring must be carried out in accordance with the stipulations in force.



Miniature circuit-breaker

The heat pump and a large proportion of its internal components are internally fused by a miniature circuit breaker (FA1).

Temperature limiter

The temperature limiter (FD1) cuts the current supply to the electrical addition if the temperature rises between 90 and 100°C and can be manually reset.

Resetting

The temperature limiter (FD1) is accessible behind the front cover. Reset the temperature limiter by pressing the button (FD1-SF2) using a small screwdriver.

Motor cut-out

Motor protection breaker (FB1) cuts the power to the compressor if the current is too high.

Resetting

The motor protection breaker (FB1) is accessible behind the front cover. The breaker is reset by twisting the control knob to horizontal position.



Caution

Check the miniature circuit-breaker, temperature limiter and motor protection breaker. They may have tripped during transportation.

Accessibility, electrical connection

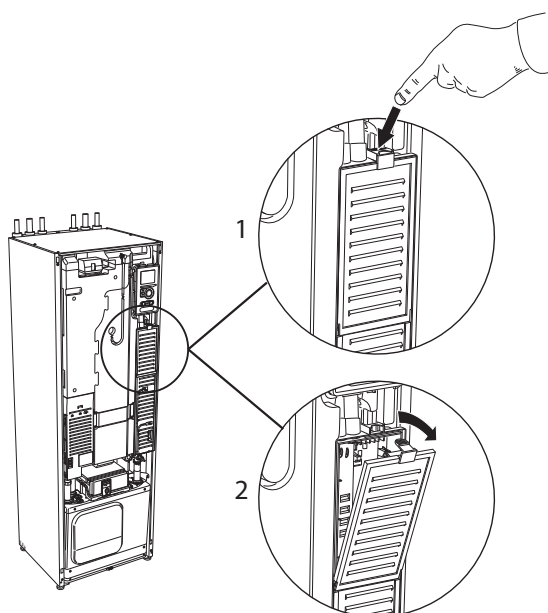
The plastic cap of the electrical boxes is opened using a screwdriver.



NOTE

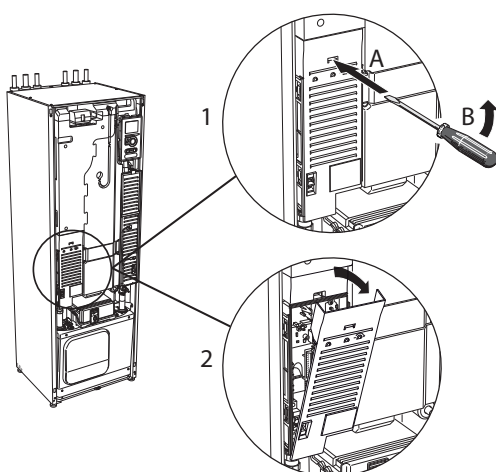
The cover for the terminal block for soft inputs is opened without a tool.

Removing the cover, terminal block



1. Push the catch down.
2. Angle out the cover and remove it.

Removing the cover, immersion heater circuit board



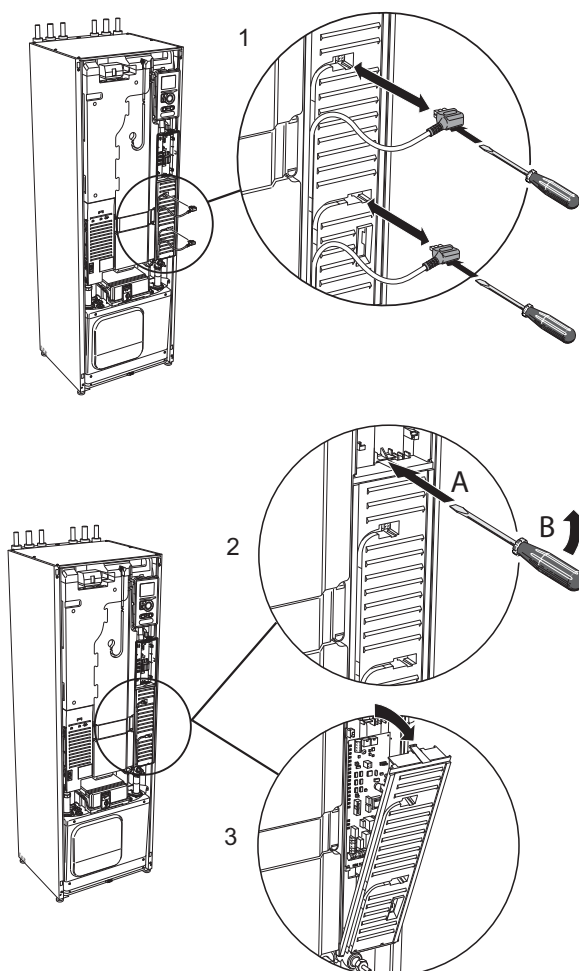
1. Insert the screwdriver (A) and pry the catch carefully downwards (B).
2. Angle out the cover and remove it.

Removing the cover, base board



Caution

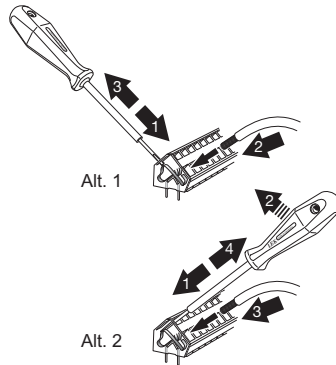
To remove the cover for the base board, the cover for the terminal block for soft inputs must first be removed.



1. Disconnect the switches using a screwdriver.
2. Insert the screwdriver (A) and pry the catch carefully downwards (B).
3. Angle out the cover and remove it.

Cable lock

Use a suitable tool to release/lock cables in the heat pump terminal blocks.



Connections



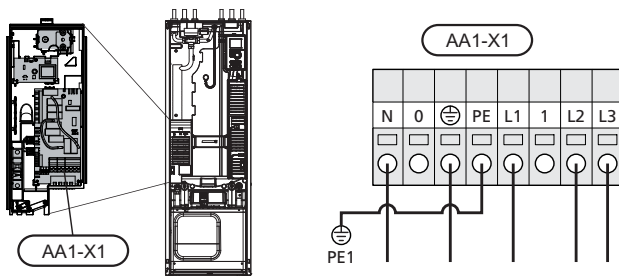
NOTE

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

Power connection

F1226 must be installed via an isolator switch with a minimum breaking gap of 3mm. Minimum cable area must be dimensioned according to the fuse rating used. Supplied cable for incoming electricity is connected to terminal block X1 on the immersion heater card (AA1).

Connection 3x400V



NOTE

F1226-11 contains scroll compressor, which means that it is important that electrical connections are made with the correct phase sequence. With the incorrect phase sequence, the compressor does not start and an alarm is displayed.

If separate supply to the compressor and immersion heater is required, see section "Switch for external blocking of addition and/or compressor" on page 22.

Tariff control

If the voltage to the immersion heater and/or the compressor disappears during a certain period, there must also be blocking via the AUX-input, see "Connection options- Possible selection for AUX inputs".

Connecting external operating voltage for the control system

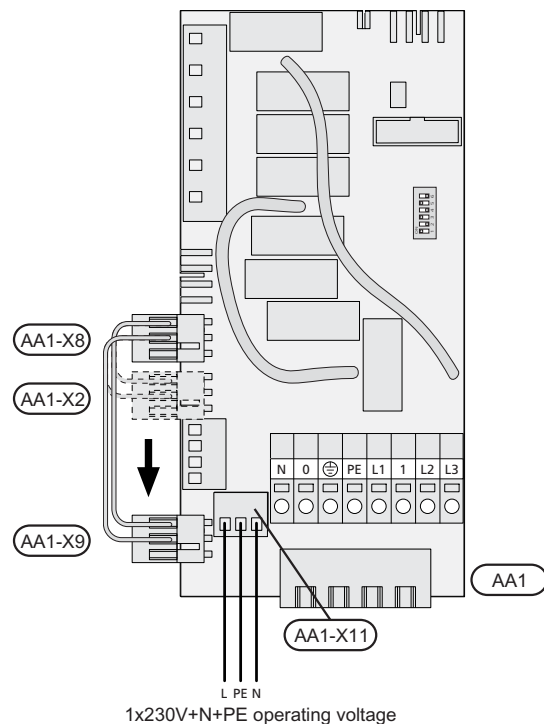


NOTE

Mark up any junction boxes with warnings for external voltage.

If you wish to connect external operating voltage for the control system to F1226 on the immersion heater circuit board (AA1) the edge connector at AA1:X2 must be moved to AA1:X9 (as illustrated).

Operating voltage (1x230V+N+PE) is connected to AA1:X11 (as illustrated).

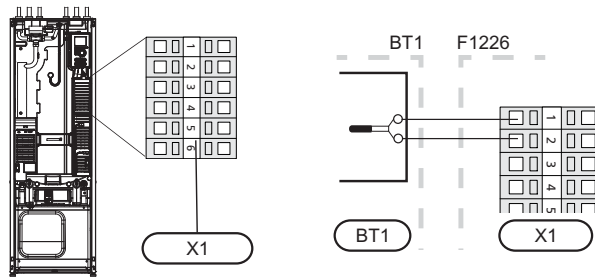


Outside sensor

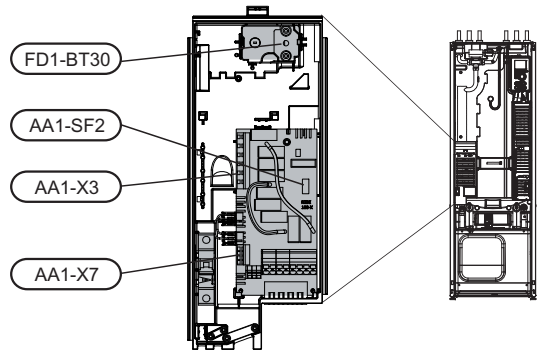
Install the outside temperature sensor (BT1) in the shade on a wall facing north or north-west, so it is unaffected by the morning sun.

Connect the sensor to terminal block X1:1 and X1:2. Use a 2 core cable of at least 0.5 mm² cable area.

If a conduit is used it must be sealed to prevent condensation in the sensor capsule.



Settings



Electrical addition - maximum output

On delivery the immersion heater is connected for a maximum of 7 kW (switchable to 9 kW).

The immersion heater's output is split into seven steps (four steps if the immersion heater is switched to maximum 9 kW), according to the table below.

Setting max electrical output

Setting maximum output in the electrical addition is done in menu 5.1.12.

The tables display the total phase current for the immersion heater.

Switching to maximum electrical output

If more than the maximum output for the immersion heater connected on delivery is needed, the heat pump can be switched to maximum 9 kW.

Move the white cable from terminal block X7:23 to terminal block X3:13 (the seal on the terminal block must be broken) on the immersion heater card (AA1).

3x400V (maximum electrical output, connected upon delivery 7 kW)

Max electrical addition (kW)	Max phase current L1(A)	Max phase current L2(A)	Max phase current L3(A)
0	0	0	0
1	0	0	4.3
2	0	8.7	0
3	0	8.7	4.3
4	0	8.7	8.7
5	8.7	8.7	4.3
6	8.7	8.7	8.7
7	8.7	8.7	13

3x400V (maximum electrical output, switched to 9 kW)

Max electrical addition (kW)	Max phase current L1(A)	Max phase current L2(A)	Max phase current L3(A)
0	0	0	0
2	0	8.7	0
4	0	8.7	8.7
6	8.7	8.7	8.7
9	8.7	16.2	16.2

Emergency mode

When the heat pump is set to emergency mode (SF1 is set to **Δ**) only the most necessary functions are activated.

- The compressor is off and heating is managed by the immersion heater.
- Hot water is not produced.



NOTE

Switch (SF1) must not be moved to "I" or "**Δ**" until F1226 has been filled with water. Otherwise the temperature limiter, thermostat, compressor and the immersion heater can be damaged.

Power in emergency mode

The immersion heater's output in emergency mode is set with the dipswitch (S2) on the immersion heater circuit board (AA1) according to the table below. Factory setting is 6 kW.

When installing according to current building regulations (BBR) the immersion heater's power in emergency mode must be set to the maximum permitted electrical output.

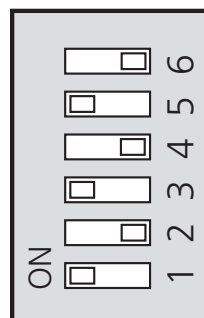
3x400V (maximum electrical output, connected upon delivery 7 kW)

	1	2	3	4	5	6
1 kW	off	off	off	off	off	on
2 kW	off	off	on	off	off	off
3 kW	off	off	on	off	off	on
4 kW	off	off	on	off	on	off
5 kW	on	off	on	off	off	on
6 kW	on	off	on	off	on	off
7 kW	on	off	on	off	on	on

3x400V (maximum electrical output, switched to 9 kW)

	1	2	3	4	5	6
2 kW	off	off	off	off	on	off
4 kW	off	off	on	off	on	off
6 kW	on	off	on	off	on	off
9 kW	on	off	on	on	on	on

3x400V

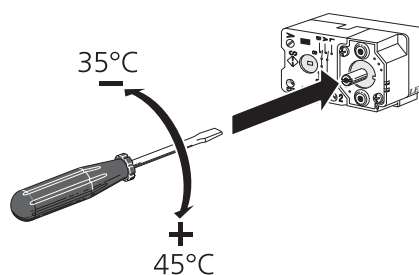


AA1-SF2

The image shows the dip-switch (AA1-SF2) in the factory setting, that is 6 kW.

Emergency mode thermostat

The supply temperature is set in emergency mode using a thermostat (FD1-BT30). It can be set to 35 (pre-set, for example underfloor heating) or 45 °C (for example radiators).



Optional connections

External connection options

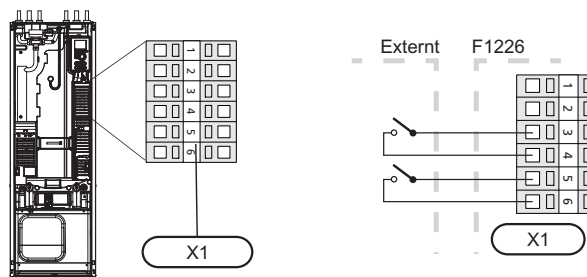
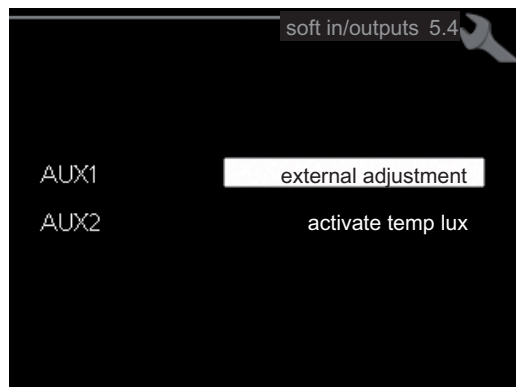
On the terminal block (X1) F1226 has software controlled inputs for connecting the external switch function or sensor. This means that when an external switch function or sensor is connected to one of two special connections, the correct function must be selected to the correct connection in the software in F1226.



Caution

If an external switch function or sensor is connected to F1226, the function for use input must be selected in menu 5.4, see page 47.

Selectable inputs on the input card for these functions are AUX1 (X1:3-4) and AUX2 (X1:5-6)



The example above uses the inputs AUX1 (X1:3-4) and AUX2 (X1:5-6) on the terminal block (X1).



Caution

Some of the following functions can also be activated via menu settings.

Possible selection for AUX inputs

Room temperature sensor (accessory)

F1226 can be supplemented with the accessory RTS 40 (room temperature sensor).

The room temperature sensor is connected to the selected input (menu 5.4, see page 47) on terminal block X1 and

installed in the building according to the installer handbook.

Temperature sensor, external flow line

If temperature sensor, external flow line (BT25) needs to be used, connect it to selected input (menu 5.4, see page 47) on terminal block X1. Use a 2 core cable of at least 0.5 mm² cable area.

Switch for external blocking of addition and/or compressor

In those cases external blocking of addition and/or compressor is wanted, this can be connected to terminal block X1, which is positioned behind the front cover.

The additional heat and/or the compressor are disconnected by connecting a potential free switch function to the input selected in menu 5.4, see page 47.

External blocking of addition and compressor can be combined.

A closed contact results in the electrical output being disconnected.

Switch for external blocking of heating

In those cases external blocking of heat is used, this can be connected to terminal block X1, which is positioned behind the front cover.

Heating operation is disconnected by connecting a potential free switch function to the input selected in menu 5.4, see page 47.

A closed switch results in blocked heating operation.

Contact for activation of "temporary lux"

An external contact function can be connected to F1226 for activation of the hot water function "temporary lux". The switch must be potential free and connected to the selected input (menu 5.4, see page 47) on terminal block X1.

"temporary lux" is activated for the time that the contact is connected.

Contact for activation of "external adjustment"

An external contact function can be connected to F1226 to change the supply temperature and the room temperature.

When the switch is closed the temperature changes in °C (if the room sensor is connected and activated). If a room sensor is not connected or not activated, the desired offset of "temperature" (heating curve offset) is set with the number of steps selected. The value is adjustable between -10 and +10.

■ climate system 1

The switch must be potential free and connected to the selected input (menu 5.4, see page 47) on terminal block X1.

The value for the change is set in menu 1.9.2, "external adjustment".

Connecting accessories

Instructions for connecting accessories are in the installation instructions provided for the respective accessory. See page 57 for the list of the accessories that can be used with F1226.

6 Commissioning and adjusting

Preparations

1. Check that the switch (SF1) is in position " ⏻ ".
2. Check that the temperature limiter FD1 has not tripped.
3. Check for water in the hot water heater and climate system.



Caution

Check the temperature limiter, motor protection and miniature circuit-breaker. They may have tripped during transportation.

Filling and venting

Filling and venting the climate system

Filling

1. Open the venting valve (QM22).
2. When the water that exits the venting valve (QM22) is not mixed with air, close the valve. After a while the pressure starts to rise.
3. Close the filling valve when the correct pressure is obtained.

Venting

1. Bleed the heat pump via the bleed valve (QM22) and the rest of the climate system via the relevant bleed valves.
2. Keep topping up and venting until all air has been removed and the pressure is correct.



TIP

If the heating medium pump (GP1) must be run during venting, it can be started via the start guide.



NOTE

The pipe from the coil in the container must be drained of water before air can be released. This means that the system is not necessarily vented despite the flow of water when the venting valve (QM22) is opened.

Filling the hot water heater

1. Open a hot water tap in the house.
2. Fill the hot water heater through the cold water connection (XL3).
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.

Filling and venting the brine system

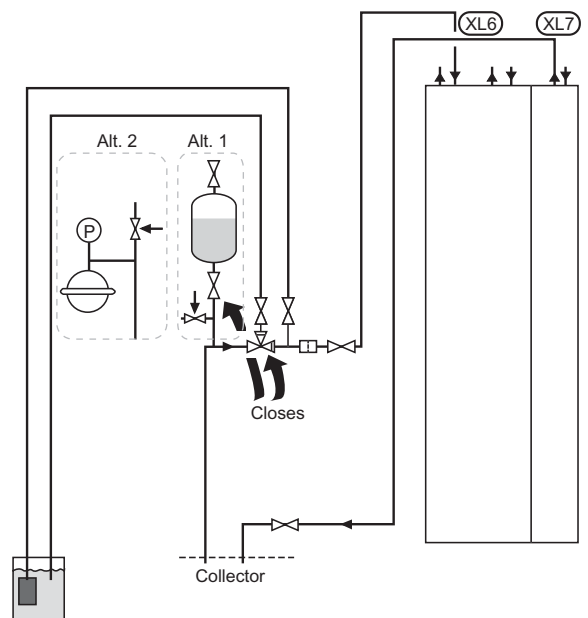
When filling the brine system, mix the water with anti-freeze in an open container. The mixture should be protected against freezing down to about -15 °C. The brine is filled by connecting a filling pump.

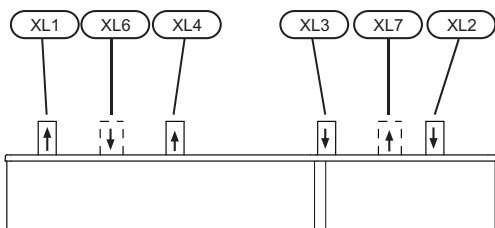
1. Check the brine system for leakage.
2. Connect the filling pump and return line on the brine system's filler connector as illustrated.
3. If alternative 1 (level vessel) is used, close the valve under the level vessel (CM2).
4. Close the three way valve in the filler connector (accessory).
5. Open the valves on the filler connector.
6. Start the filling pump.
7. Fill until liquid enters the return pipe.
8. Vent the brine system with venting valve on F1226.
9. Close the valves on the filler connector.
10. Open the three way valve in the filler connector.
11. If alternative 1 (level vessel) is used, open the valve under the level vessel (CM2).



TIP

If the brine pump (GP2) must be run during venting, it can be started via the start guide.





XL 1	Connection, heating medium flow
XL 2	Connection, heating medium return
XL 3	Connection, cold water
XL 4	Connection, hot water
XL 6	Connection, brine in
XL 7	Connection, brine out

Symbol key

Symbol	Meaning
	Shut-off valve
	Safety valve
	Level vessel
	Expansion vessel
	Pressure gauge
	Particle filter

Start guide



NOTE

There must be water in the climate system before the switch is set to "I".

1. Turn the heat pump's switch (SF1) to "I".
2. Follow the instructions in the start guide in the heat pump display. If the start guide does not start when you start the heat pump, start it manually in menu 5.7.

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.

Operation in the start guide



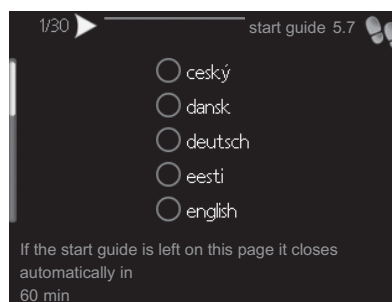
Arrows to scroll through window in start guide

1. Turn the control knob until one of the arrows in the top left corner (at the page number) has been marked.
2. Press the OK button to skip between the steps in the start guide.

See page 33 for a more in-depth introduction to the heat pump's control system.

The start guide will be described under the following points step-by-step.

1 Selection of language

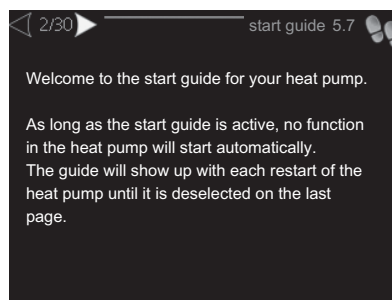


Choose the language that you want the information to be displayed in here.

Change language as follows:

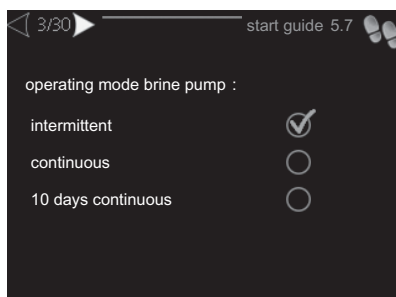
1. Turn the control knob until the language you require is marked.
2. Press the OK button.
3. Turn the control knob until the arrow in the top left corner (at the page number) has been marked.
4. Press the OK button to access the next step in the start guide.

2 Information



Information about the start guide for the heat pump is shown here.

3 Setting "operating mode brine pump"



op. mode

Setting range: intermittent, continuous, 10 days continuous

Default value: intermittent

Set the operating mode of the brine pump here.

intermittent: The brine pump starts 20 seconds before and stops at the same time as the compressor.

continuous: Continuous operation.

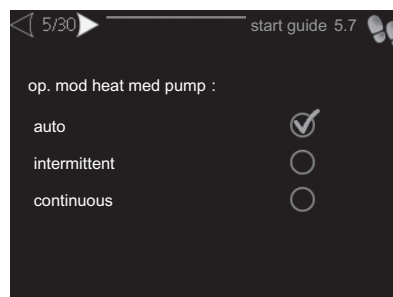
10 days continuous: Continuous operation for 10 days. Then the pump shifts to intermittent operation.



TIP

You can use "10 days continuous" at start-up to obtain continuous circulation during a start-up time in order to make it easier to bleed the system.

5 Setting "op. mod heat med pump"



op. mode

Setting range: auto, intermittent, continuous

Default value: auto

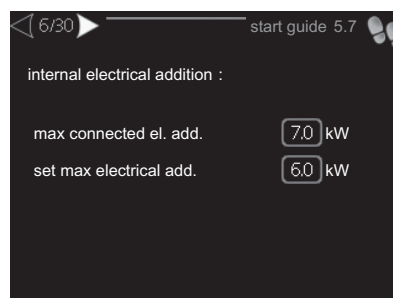
Set the operating mode of the heating medium pump here.

auto: The heating medium pump runs according to the current operating mode for F1226.

intermittent: The heating medium pump starts 20 seconds before and stops at the same time as the compressor.

continuous: Continuous operation.

6 Setting "internal electrical addition"



max connected el. add.

Setting range: 7 / 9 kW

Default values: 7 kW

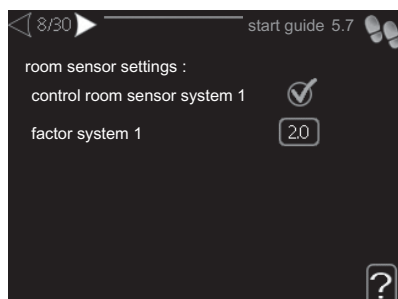
set max electrical add.

Setting range: 0 - 9 kW

Default values: 6 kW

Here you set the max. electrical output of the internal electrical addition in F1226 and the fuse size for the installation.

8 Room sensor settings



factor system

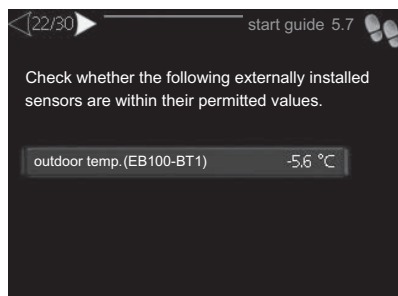
Setting range: 0.2 - 3.0

Default value: 2.0

Room sensors to control the room temperature can be activated here.

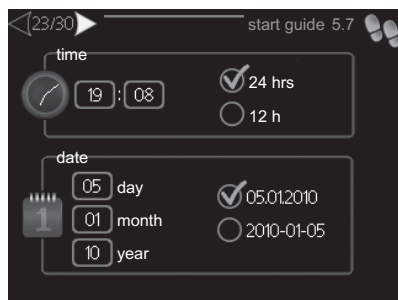
Here you can set a factor that determines how much the supply temperature is to be affected by the difference between the desired room temperature and the actual room temperature. A higher value gives a greater change of the heating curve's set offset.

22 Checking the measurement values from sensor



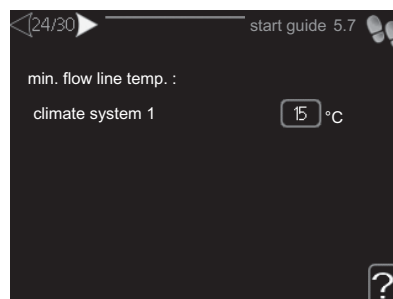
Check here whether the selected externally mounted sensor shows permitted values for the installation.

23 Setting time and date



Set time and date and display mode here.

24 Setting min. flow line temp.



climate system

Setting range: 15-50 °C

Default values: 15°C

Set the minimum temperature on the supply temperature to the climate system. This means that F1226 never calculates a temperature lower than that set here.

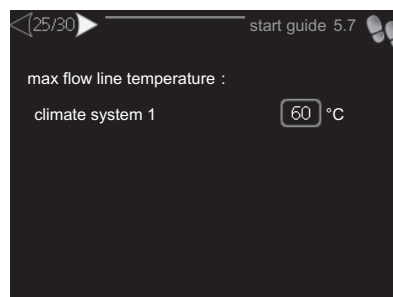


TIP

The value can be increased if you have, for example, a cellar that you always want to heat, even in summer.

You may also need to increase the value in "stop heating" menu 4.9.2 "auto mode setting".

25 Setting max. flow line temp.



climate system

Setting range: 15-80 °C

Default value: 60 °C

Set the maximum supply temperature for the climate system here.

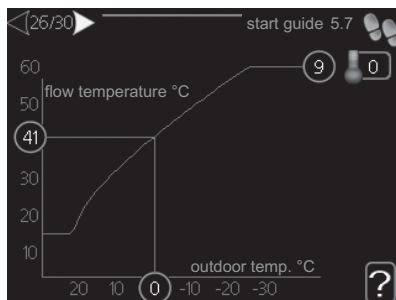


Caution

Underfloor heating systems are normally **max flow line temperature** set between 35 and 45 °C.

Check the max floor temperature with your floor supplier.

26 Setting the heat curve

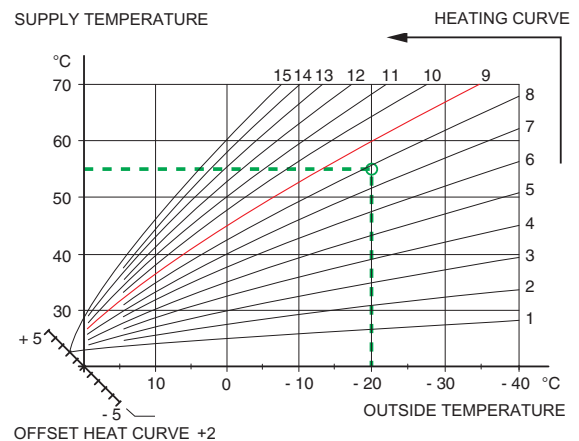
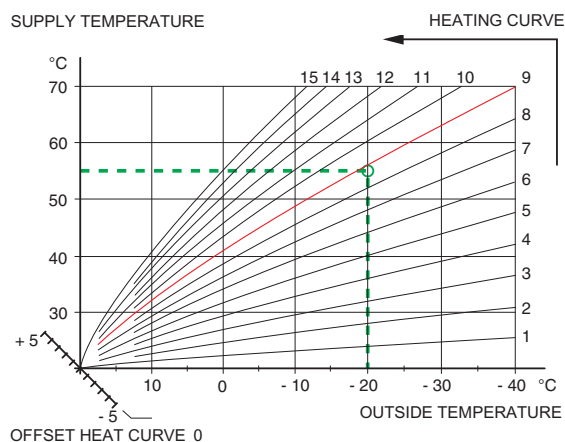
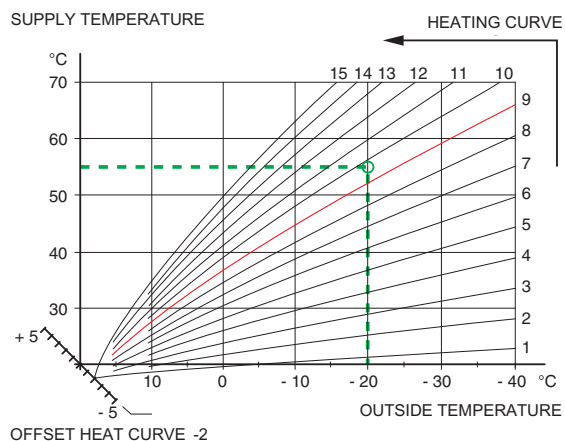


At basic setting the climate system "heating curve" and "temperature" (heating curve offset) must be changed.

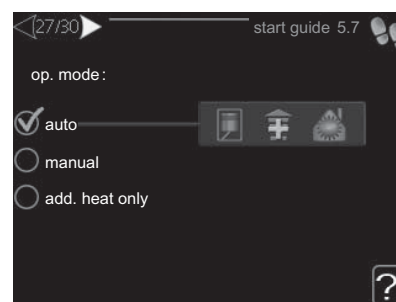
Further information on how to set the heating curve can be found on page 38.

Setting automatic heating controls with diagram

The diagrams are based on the dimensioned outdoor temperature in the area and the dimensioned supply temperature of the climate system. When these two values "meet", the heating control's curve slope can be read. This is set under "heating curve" in menu 1.9.1.



27 Setting operating mode



op. mode

Setting range: auto, manual, add. heat only

Default value: auto

functions

Setting range: compressor, addition, heating

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 an addition is used, or "manual" and select yourself what functions are to be permitted.

Change the operating mode by marking the desired mode and pressing the OK button. When an operating mode is selected it shows what in the heat pump is permitted (crossed out = not permitted) and selectable alternatives to the right. To select selectable functions that are permitted or not you mark the function using the control knob and press the OK button.

Operating mode auto

In this operating mode you cannot select which functions are to be permitted because it is handled automatically by the heat pump.

Operating mode manual

In this operating mode you can select what functions are permitted. You cannot deselect "compressor" in manual mode.

Operating mode add. heat only



Caution

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

In this operating mode the compressor is not active and only additional heating is used.

Functions

"**compressor**" is that which produces heating and hot water for the accommodation. If "compressor" is deselected, a symbol in the main menu on the heat pump symbol is displayed. You cannot deselect "compressor" in manual mode.

"**addition**" is what helps the compressor to heat the accommodation and/or the hot water when it cannot manage the whole requirement alone.

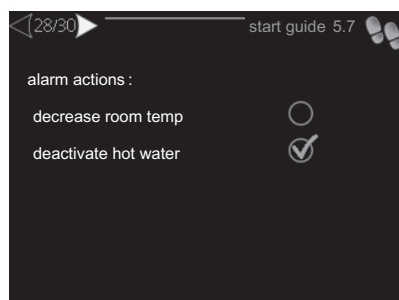
"**heating**" means that you get heat in the accommodation. You can deselect the function when you do not wish to have heating running.



Caution

If you deselect "addition" it may mean that sufficient heating in the accommodation is not achieved.

28 Dealing with alarms



Select how you want the heat pump to alert you that there is an alarm in the display here.

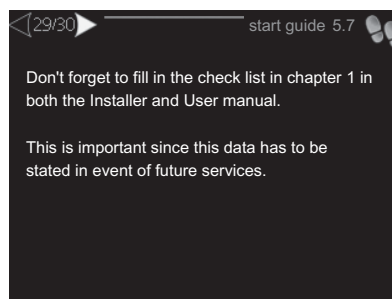
The different alternatives are that the heat pump stops producing hot water (default setting) and/or reduces the room temperature.



Caution

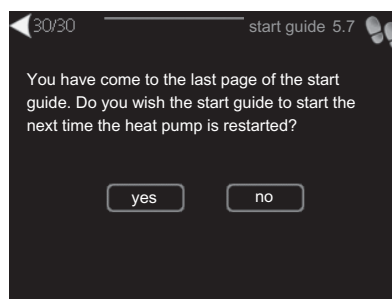
If no alarm action is selected, it can result in higher energy consumption in the event of an alarm.

29 Filling in the checklist



Do not forget to fill in the checklist on page 3 and in the user manual.

30 Complete the start guide



Here you select whether to start the start guide the next time the heat pump is restarted.



Caution

If you choose "yes" this means that the next time the heat pump is started (e.g. after a power cut) it will not produce heat or hot water for 60 minutes.

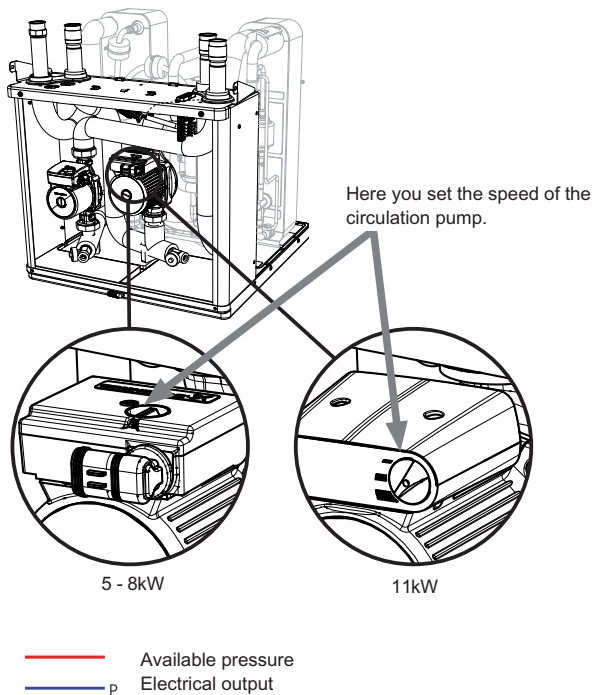
Post adjustment and venting

Pump capacity diagrams, collector side

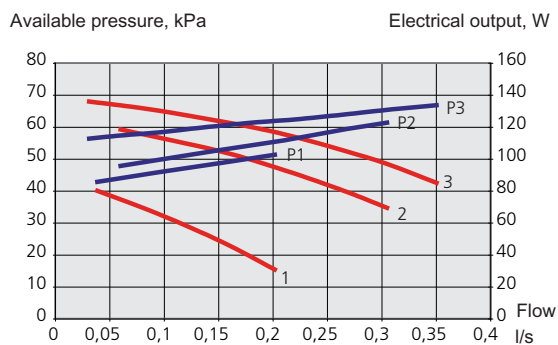
To set the correct flow in the brine system the correct speed must be set for the brine pump.

The flow must have a temperature difference between brine out (BT11) and brine in (BT10) of 2 - 5 °C when the system is balanced (suitably 5 minutes after compressor start). Check these temperatures in menu 3.1 "service info" and adjust the brine pump (GP2) speed until the temperature difference is achieved. A high difference indicates a low brine flow and a low difference indicates a high brine flow.

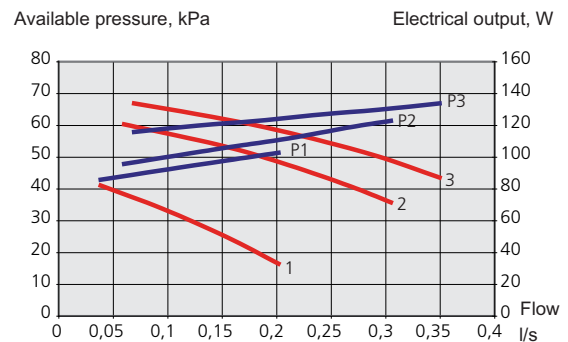
Read off what speed the brine pump should have from the diagrams below.



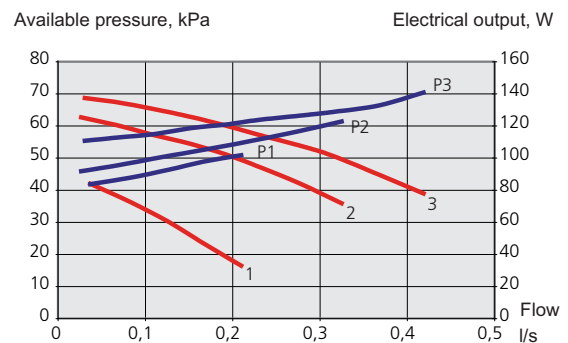
F1226 5 kW



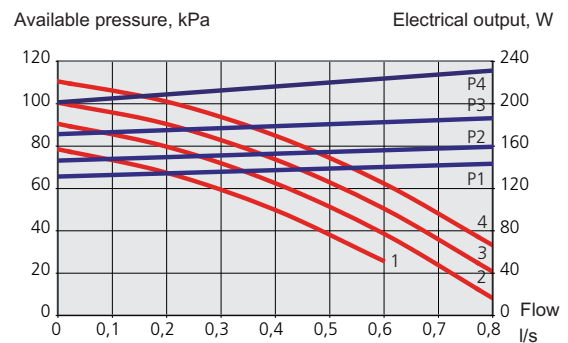
F1226 6 kW



F1226 8 kW



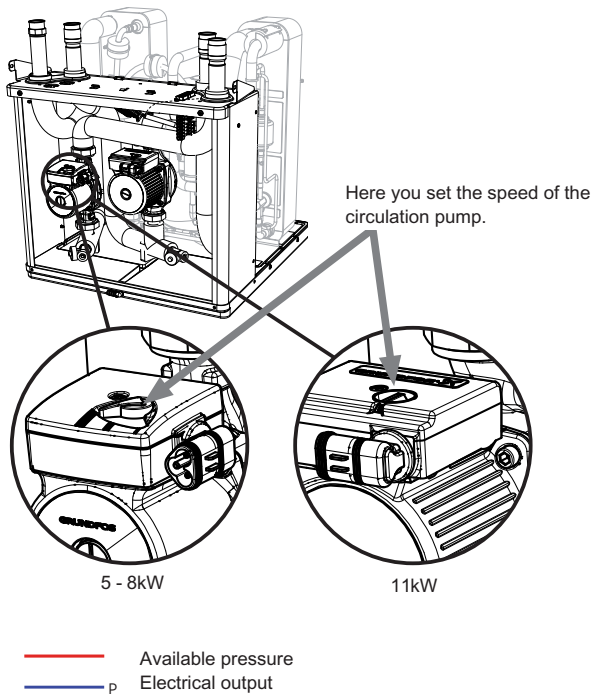
F1226 11 kW



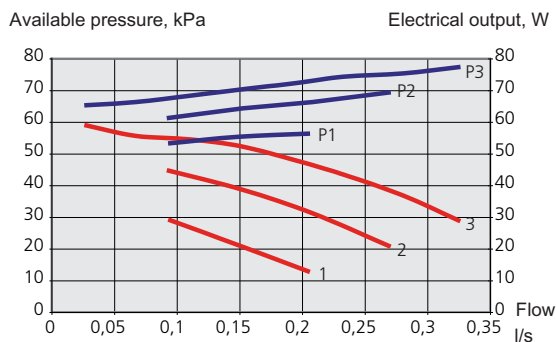
Pump capacity diagrams, heating medium side

To set the correct flow in the climate system the correct speed must be set for the heating medium pump in the different operating conditions.

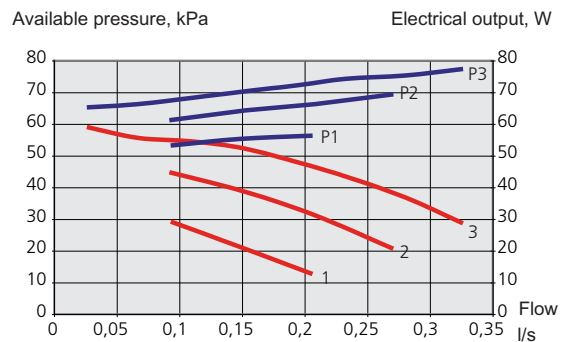
The flow must have a suitable temperature difference for the operation (heating operation: 5 - 10 °C, hot water regeneration: 8 - 10 °C, pool heating: approx. 15 °C) between flow temperature (BT2) and the return temperature (BT3). Check these temperatures in menu 3.1 "service info" and adjust the heating medium pump (GP1) speed until the temperature difference is achieved. A high difference indicates a low heating medium flow and a low difference indicates a high heating medium flow.



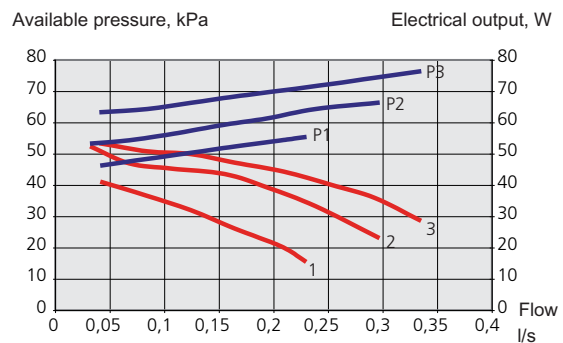
F1226 5 kW



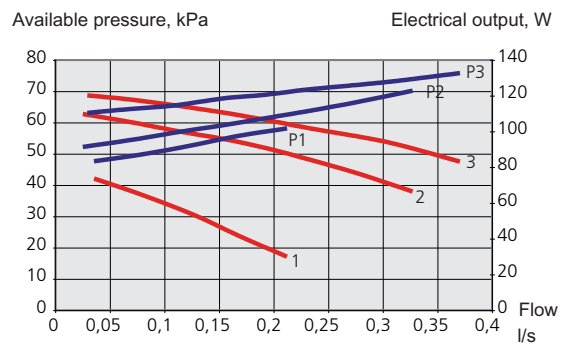
F1226 6 kW



F1226 8 kW



F1226 11 kW



Readjusting, venting, heat medium side

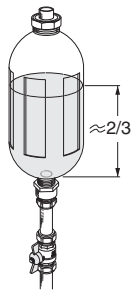
Air is initially released from the hot water and venting may be necessary. If gurgling sounds can be heard from the heat pump or climate system, the entire system will require additional venting.

Readjusting, venting, collector side

Level vessel

Check the fluid level in the level vessel (CM2). If the fluid level has dropped, top up the system.

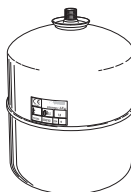
1. Close the valve under the vessel.
2. Disconnect the connection on top of the vessel.
3. Fill with brine until approx 2/3 of the vessel is full.
4. Reconnect the connector at the top of the vessel.
5. Open the valve under the vessel.



The pressure is raised by closing the valve on the incoming main line when the brine pump (GP2) is running and the level vessel (CM2) is open, so that liquid is drawn down from the vessel.

Expansion vessel

If a pressure expansion vessel (CM3) is used instead of a level vessel, the pressure level is checked. If the pressure drops, the system should be replenished.



Post adjusting the room temperature

If the required room temperature is not obtained, readjustment may be necessary.

Cold weather conditions

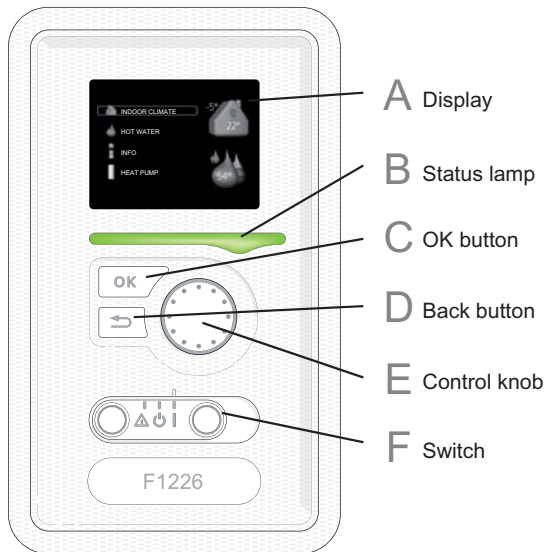
- If the room temperature is too low, increase "heating curve" in menu 1.9.1, one step.
- If the room temperature is too high, reduce "heating curve" in menu 1.9.1, one step.

Warm weather conditions

- If the room temperature is too low, increase "temperature" (heating curve offset) in menu 1.1, one step.
- If the room temperature is too high, reduce "temperature" (heating curve offset) in menu 1.1, one step.

7 Control - Introduction

Display unit



A Display

Instructions, settings and operational information are shown on the display. The easy-to-read display and menu system, facilitates navigation between the different menus and options to set the comfort or obtain the information you require.

B Status lamp

The status lamp indicates the status of the heat pump. It:

- lights green during normal operation.
- lights yellow in emergency mode.
- lights red in the event of a deployed alarm.

C OK button

The OK button is used to:

- confirm selections of sub menus/options/set values/page in the start guide.

D Back button

The back button is used to:

- go back to the previous menu.
- change a setting that has not been confirmed.

E Control knob

The control knob can be turned to the right or left. You can:

- scroll in menus and between options.
- increase and decrease the values.
- change page in multiple page instructions (for example help text and service info).

F Switch (SF1)

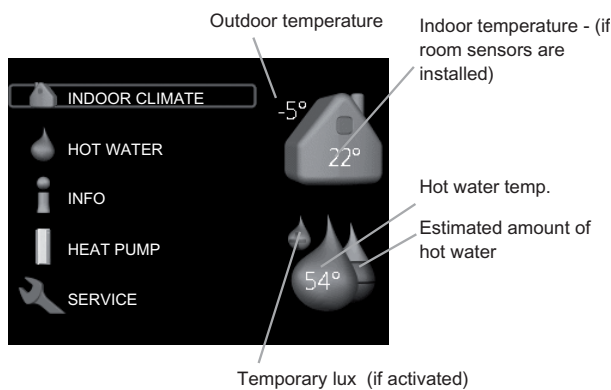
The switch assumes three positions:

- On (I)
- Standby (⏻)
- Emergency mode (⚠)

Emergency mode must only be used in the event of a fault on the heat pump. In this mode, the compressor switches off and the immersion heater engages. The heat pump display is not illuminated and the status lamp illuminates yellow.

Menu system

When the door to the heat pump is opened, the menu system's four main menus are shown in the display as well as certain basic information.



Menu 1 - INDOOR CLIMATE

Setting the indoor climate. See page 37.

Menu 2 - HOT WATER

Setting the hot water production. See page 41.

Menu 3 - INFO

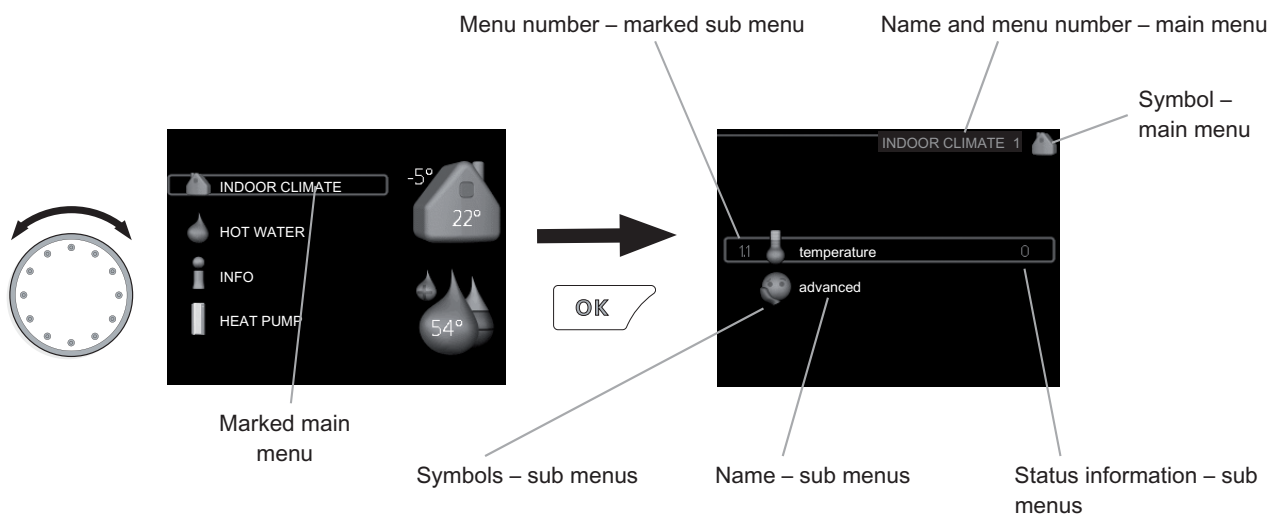
Display of temperature and other operating information and access to the alarm log. See page 42.

Menu 4 - HEAT PUMP

Setting time, date, language, display, operating mode etc. See page 43.

Menu 5 - SERVICE

Advanced settings. These settings are not available to the end user. The menu is visible by pressing the Back button for 7 seconds. See page 45.



Operation

To move the cursor, turn the control knob to the left or the right. The marked position is brighter and/or has a light frame.

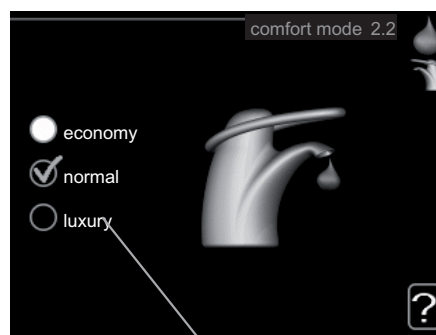


Selecting menu


To advance in the menu system select a main menu by marking it and then pressing the OK button. A new window then opens with sub menus.

Select one of the sub menus by marking it and then pressing the OK button.



Selecting options



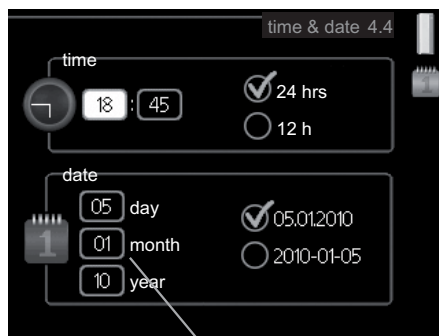
Alternative

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

To select another option:





1. Mark the applicable option. 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



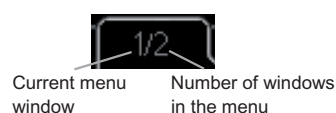
Values to be changed

To set a value:

1. Mark the value you want to set using the control knob. 
2. Press the OK button. The background of the value becomes green, which means that you have accessed the setting mode. 
3. Turn the control knob to the right to increase the value and to the left to reduce the value. 
4. Press the OK button to confirm the value you have set. To change and return to the original value, press the Back button. 

Scroll through the windows

A menu can consist of several windows. Turn the control knob to scroll between the windows.




Scroll through the windows in the start guide



Arrows to scroll through window in start guide

1. Turn the control knob until one of the arrows in the top left corner (at the page number) has been marked.
2. Press the OK button to skip between the steps in the start guide.

Help menu

 In many menus there is a symbol that indicates that extra help is available.

To access the help text:

1. Use the control knob to select the help symbol.
2. Press the OK button.

The help text often consists of several windows that you can scroll between using the control knob.

8 Control - Menus

Menu 1 - INDOOR CLIMATE

Overview

1 - INDOOR CLIMATE	1.1 - temperature
	1.9 - advanced
	1.9.1 - heating curve
	1.9.2 - external adjustment
	1.9.3 - min. flow line temp.
	1.9.4 - room sensor settings
	1.9.7 - own curve
	1.9.8 - point offset

Sub-menus

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

temperature Setting the temperature for the climate system. The status information shows the set values for the climate system. Tab for cooling system is only displayed if accessory for cooling are present or if the heat pump has the integrated cooling function.

advanced Setting of heat curve, adjusting with external contact, minimum value for supply temperature and room sensor.

Menu 1.1 - temperature

If the house has several climate systems, this is indicated on the display by a thermometer for each system.

Set the temperature (with room sensors installed and activated):

Setting range: 5 - 30 °C
Default value: 20

The value in the display appears as a temperature in °C if the heating system is controlled by a room sensor.

To change the room temperature, use the control knob to set the desired temperature in the display. Confirm the new setting by pressing the OK button. The new temperature is shown on the right-hand side of the symbol in the display.

Setting the temperature (without room sensors activated):

Setting range: -10 to +10
Default value: 0

The display shows the set values for heating (curve offset). To increase or reduce the indoor temperature, increase or reduce the value on the display.

Use the control knob to set a new value. Confirm the new setting by pressing the OK button.

The number of steps the value has to be changed to achieve a degree change of the indoor temperature depends on the heating unit. One step for under floor heating whilst radiators may require three.

Setting the desired value. The new value is shown on the right-hand side of the symbol in the display.



Caution

An increase in the room temperature can be slowed by the thermostats for the radiators or under floor heating. Therefore, open the thermostat valves fully, except in those rooms where a cooler temperature is required, e.g. bedrooms.



TIP

Wait 24 hours before making a new setting, so that the room temperature has time to stabilise.

If it is cold outdoors and the room temperature is too low, increase the curve slope in menu 1.9.1 by one increment.

If it is cold outdoors and the room temperature is too high, lower the curve slope menu 1.9.1 by one increment.

If it is warm outdoors and the room temperature is too low, increase the value in menu 1.1 by one increment.

If it is warm outdoors and the room temperature is too high, reduce the value in menu 1.1 by one increment.

Menu 1.9 - advanced

Menu **advanced** is intended for the advanced user. This menu has several sub-menus.

heating curve Setting the heating curve slope.

external adjustment Setting the heat curve offset when the external contact is connected.

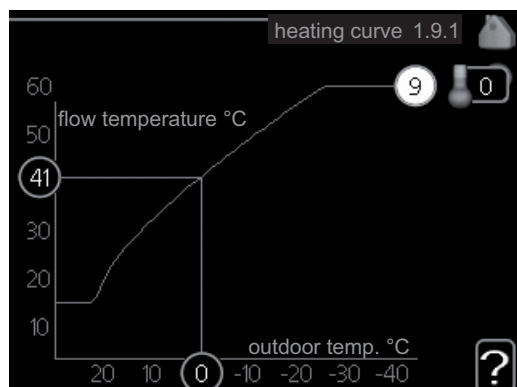
min. flow line temp. Setting minimum permitted flow line temperature.

room sensor settings Settings regarding the room sensor.

own curve Setting own heat curve.

point offset Setting the offset of the heating curve at a specific outdoor temperature.

Menu 1.9.1 - heating curve



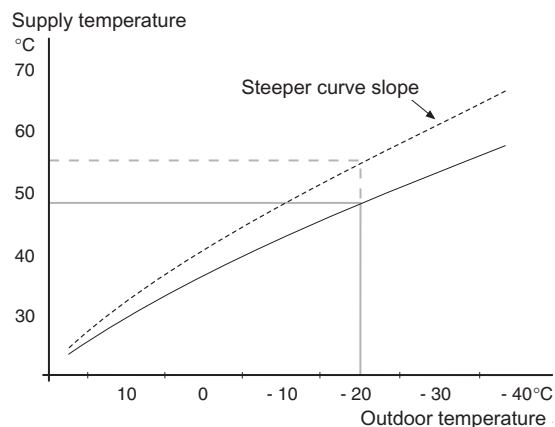
heating curve

Setting range: 0 - 15

Default value: 9

In the menu **heating curve** the so-called heating curve for your house can be viewed. The task of the heating curve is to give an even indoor temperature, regardless of the outdoor temperature, and thereby energy efficient operation. It is from this heating curve that the heat pump's control computer determines the temperature of the water to the heating system, flow line temperature, and therefore the indoor temperature. You can select heating curve and read off how the flow line temperature changes at different outdoor temperatures here.

Curve coefficient



The slope of the heating curve indicates how many degrees the supply temperature is to be increased/reduced when the outdoor temperature drops/increases. A

steeper slope means a higher supply temperature at a certain outdoor temperature.

The optimum slope depends on the climate conditions in your location, if the house has radiators or under floor heating and how well insulated the house is.

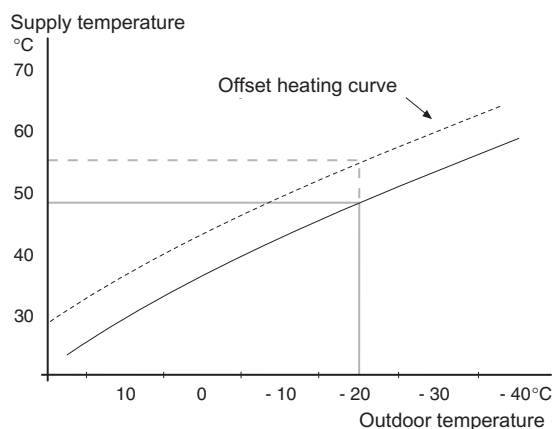
The heating curve is set when the heating installation is installed, but may need adjusting later. Thereafter the heating curve should not need further adjustment.



Caution

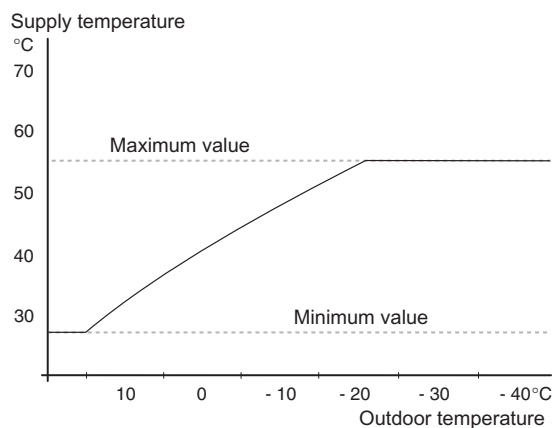
In the event of making fine adjustments for the indoor temperature, the heat curve must be offset up or down instead, this is done in menu 1.1 **temperature**.

Curve offset



An offset of the heating curve means that the supply temperature changes as much for all the outdoor temperatures, e.g. that a curve offset of +2 steps increases the supply temperature by 5 °C at all outdoor temperatures.

Flow line temperature– maximum and minimum values



Because the flow line temperature cannot be calculated higher than the set maximum value or lower than the set minimum value the heating curve flattens out at these temperatures.

**Caution**

Underfloor heating systems are normally **max flow line temperature** set between 35 and 45 °C.

Check the max temperature for your floor with your installer/floor supplier.

The figure at the end of the curve indicates the curve slope. The figure beside the thermometer gives the curve offset. Use the control knob to set a new value. Confirm the new setting by pressing the OK button.

Curve 0 is an own heating curve created in menu 1.9.7.

To select another heat curve (slope):

1. Press the OK button to access the setting mode
2. Select a new heating curve. The heat curves are numbered from 0 to 15, the greater the number, the steeper the slope and the greater the supply temperature. Heating curve 0 means that **own curve** (menu 1.9.7) is used.
3. Press the OK button to exit the setting.

To read off a heating curve:

1. Turn the control knob so that the ring on the shaft with the outdoor temperature is marked.
2. Press the OK button.
3. Follow the grey line up to the heat curve and out to the left to read off the value for the supply temperature at the selected outdoor temperature.
4. You can now select to take read outs for different outdoor temperatures by turning the control knob to the right or left and read off the corresponding flow temperature.
5. Press the OK or Back button to exit read off mode.

**TIP**

Wait 24 hours before making a new setting, so that the room temperature has time to stabilise.

If it is cold outdoors and the room temperature is too low, increase the curve slope by one increment.

If it is cold outdoors and the room temperature is too high, lower the curve slope by one increment.

If it is warm outdoors and the room temperature is too low, increase the curve offset by one increment.

If it is warm outdoors and the room temperature is too high, lower the curve offset by one increment.

Menu 1.9.2 - external adjustment**climate system**

Setting range: -10 to +10 or desired room temperature if the room sensor is installed.

Default value: 0

Connecting an external contact, for example, a room thermostat or a timer allows you to temporarily or periodically raise or lower the room temperature. When the contact is on, the heat curve offset is changed by the number of steps selected in the menu. If a room sensor is installed and activated the desired room temperature (°C) is set.

Menu 1.9.3 - min. flow line temp.**climate system**

Setting range: 15-50 °C

Default values: 15°C

Set the minimum temperature on the supply temperature to the climate system. This means that F1226 never calculates a temperature lower than that set here.

**TIP**

The value can be increased if you have, for example, a cellar that you always want to heat, even in summer.

You may also need to increase the value in "stop heating" menu 4.9.2 "auto mode setting".

Menu 1.9.4 - room sensor settings**factor system**

Setting range: 0.2 - 3.0

Default value: 2.0

Room sensors to control the room temperature can be activated here.

Here you can set a factor that determines how much the supply temperature is to be affected by the difference between the desired room temperature and the actual room temperature. A higher value gives a greater change of the heating curve's set offset.

Menu 1.9.7 - own curve**supply temperature**

Setting range: 15 – 70 °C

You can create your own heating curve here, if there are special requirements, by setting the desired supply temperatures for different outdoor temperatures.



Caution

Curve 0 in menu 1.9.1 must be selected for this curve to apply.

Menu 1.9.8 - point offset

outdoor temp. point

Setting range: -40 – 30 °C

Default value: 0 °C

change in curve

Setting range: -10 – 10 °C

Default value: 0 °C

Select a change in the heating curve at a certain outdoor temperature here. A one degree change in room temperature requires one increment for underfloor heating and approximately two to three increments for the radiator system.

The heat curve is affected at ± 5 °C from set outdoor temp. point.

It is important that the correct heating curve is selected so that the room temperature is experienced as even.



TIP

If it is cold in the house, at, for example -2 °C, "outdoor temp. point" is set to "-2" and "change in curve" is increased until the desired room temperature is maintained.



Caution

Wait 24 hours before making a new setting, so that the room temperature has time to stabilise.

Menu 2 - HOT WATER

Overview

2 - HOT WATER	2.1 - temporary lux
	2.2 - comfort mode
	2.9 - advanced
	2.9.1 - periodic increases

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".

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 time to the right displays the remaining time at the selected setting.

When the time has run out F1226 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 other, but is more economical. This mode can be used in smaller households with a small hot water requirement.

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 may be partially used to heat hot water, which may increase operating costs.

Menu 2.9 - advanced

Menu **advanced** is intended for the advanced user. This menu has several sub-menus.

Menu 2.9.1 - periodic increases

period

Setting range: 1 - 90 days
Default value: 14 days

start time

Setting range: 00:00 - 23:00
Default value: 00:00

To prevent bacterial growth in the water heater, the compressor and the immersion heater can increase hot water temperature 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. Untick "activated" to 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
	3.5 - indoor temp. log

Sub-menus

For the menu **INFO** there are several sub-menus. No settings can be made in these menus, it is just display of information. Status information for the relevant menu can be found on the display to the right of the menu.

service info shows temperature levels and settings in the heat pump.

compressor info shows operating times, number of starts etc for the compressor.

add. heat info displays information about the addition's operating times etc.

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

indoor temp. log the average temperature indoors week by week during the past year.

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. Turn the control knob to scroll between the pages.

Symbols in this menu:



Compressor



Heating



Addition



Hot water



Brine pump



Heating medium pump

Menu 3.2 - compressor info

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

The information is on several pages. Turn the control knob to scroll between the pages.

Menu 3.3 - add. heat info

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

The information is on several pages. Turn the control knob to scroll between the pages.

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 3.5 - indoor temp. log

Here you can see the average temperature indoors week by week during the past year. The dotted line indicates the annual average temperature.

The average outdoor temperature is only shown if a room temperature sensor/room unit is installed.

To read off an average temperature

1. Turn the control knob so that the ring on the shaft with the week number is marked.
2. Press the OK button.
3. Follow the grey line up to the graph and out to the left to read off the average indoor temperature at the selected week.
4. You can now select to take read outs for different weeks by turning the control knob to the right or left and read off the average temperature.
5. Press the OK or Back button to exit read off mode.

Menu 4 - HEAT PUMP

Overview

4 - HEAT PUMP	4.2 - op. mode
	4.4 - time & date
	4.6 - language
	4.9 - advanced
	4.9.1 - op. prioritisation
	4.9.2 - auto mode setting
	4.9.3 - degree minute setting
	4.9.4 - factory setting user

Sub-menus

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

plus functions Settings applying to any installed extra functions in the heating system.

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

time & date Setting current time and date.

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

advanced Setting heat pump work mode.

Menu 4.2 - op. mode

op. mode

Setting range: auto, manual, add. heat only

Default value: auto

functions

Setting range: compressor, addition, heating

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 an addition is used, or "manual" and select yourself what functions are to be permitted.

Change the operating mode by marking the desired mode and pressing the OK button. When an operating mode is selected it shows what in the heat pump is permitted (crossed out = not permitted) and selectable alternatives to the right. To select selectable functions that are permitted or not you mark the function using the control knob and press the OK button.


Operating mode auto

In this operating mode you cannot select which functions are to be permitted because it is handled automatically by the heat pump.

Operating mode manual

In this operating mode you can select what functions are permitted. You cannot deselect "compressor" in manual mode.

Operating mode add. heat only



Caution

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


In this operating mode the compressor is not active and only additional heating is used.

Functions

"**compressor**" is that which produces heating and hot water for the accommodation. If "compressor" is deselected, a symbol in the main menu on the heat pump symbol is displayed. You cannot deselect "compressor" in manual mode.

"**addition**" is what helps the compressor to heat the accommodation and/or the hot water when it cannot manage the whole requirement alone.

"**heating**" means that you get heat in the accommodation. You can deselect the function when you do not wish to have heating running.



Caution

If you deselect "addition" it may mean that sufficient heating in the accommodation is not achieved.

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 4.9 - advanced

Menu **advanced** is intended for the advanced user. This menu has several sub-menus.

Menu 4.9.1 - op. prioritisation

op. prioritisation

Setting range: 0 to 180 min

Default value: 20 min

Choose here how long the heat pump should work with each requirement if there are two or more requirements at the same time. If there is only one requirement the heat pump only works with that requirement.

The indicator marks where in the cycle the heat pump is.

If 0 minutes is selected it means that requirement is not prioritised, but will only be activated when there is no other requirement.

Menu 4.9.2 - auto mode setting

stop heating

Setting range: -20 – 40 °C

Default values: 20

stop additional heat

Setting range: -20 – 40 °C

Default values: 15

filtering time

Setting range: 0 – 48 h

Default value: 24 h

When operating mode is set to "auto" the heat pump selects when start and stop of additional heat and heat production is permitted, dependent on the average outdoor temperature.

Select the average outdoor temperatures in this menu.

You can also set the time over which (filtering time) the average temperature is calculated. If you select 0, the present outdoor temperature is used.



Caution

It cannot be set "stop additional heat" higher than "stop heating".

Menu 4.9.3 - degree minute setting

current value

Setting range: -3000 – 3000

start compressor

Setting range: -1000 – -30

Default value: -60

start addition

Setting range: -2000 – -30

Default value: -400

diff. between additional steps

Setting range: 0 – 1000

Default value: 100

Degree minutes are a measurement of the current heating requirement in the house and determine when the compressor respectively additional heat will start/stop.



Caution

Higher value on "start compressor" gives more compressor starts, which increases wear in the compressor. Too low value can give uneven indoor temperatures.

Menu 4.9.4 - factory setting user

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



Caution

After factory setting, personal settings such as heating curves must be reset.

Menu 5 - SERVICE

Overview

5 - SERVICE	5.1 - operating settings	5.1.1 - hot water settings
		5.1.2 - max flow line temperature
		5.1.3 - max diff flow line temp.
		5.1.4 - alarm actions
		5.1.7 - br pmp al set.
		5.1.8 - operating mode brine pump
		5.1.10 - op. mod heat med pump
		5.1.12 - internal electrical addition
		5.1.13 - max inst. el.pwr (BBR)
	5.2 - system settings	
	5.4 - soft in/outputs	
	5.5 - factory setting service	
	5.6 - forced control	
	5.7 - start guide	
	5.8 - quick start	
	5.10 - change log	

Hold the Back button in for 7 seconds to access the Service menu.

Sub-menus

Menu **SERVICE** has orange text and is intended for the advanced user. This menu has several sub-menus. Status information for the relevant menu can be found on the display to the right of the menus.

operating settings Operating settings for the heat pump.

system settings System settings for the heat pump, activating accessories etc.

soft in/outputs Setting software controlled inputs on the terminal block (X1).

factory setting service 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

Operating settings can be made for the heat pump in the sub menus.

Menu 5.1.1 - hot water settings

start temp. economy / normal / lux

Setting range: 5 – 70 °C

Factory setting (°C):

	kW	economy	normal	luxury
Copper	5	42	45	48
Stainless	5	42	45	48
Copper	6	41	44	47
Stainless	6	41	44	47
Copper	8	40	43	46
Stainless	8	40	43	46
Copper	11	37	40	43
Stainless	11	37	40	43

stop temp. economy / normal / lux

Setting range: 5 – 70 °C

Factory setting (°C):

	kW	eco- nomy	normal	luxury
Copper	5	46	49	52
Stainless	5	46	49	52
Copper	6	45	48	51
Stainless	6	45	48	51
Copper	8	44	47	50
Stainless	8	44	47	50
Copper	11	41	44	47
Stainless	11	41	44	47

stop temp. per. increase

Setting range: 55 – 70 °C

Default values: 55 °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 5.1.2 - max flow line temperature**climate system**

Setting range: 15-80 °C

Default value: 60 °C

Set the maximum supply temperature for the climate system here.

**Caution**

Underfloor heating systems are normally **max flow line temperature** set between 35 and 45 °C.

Check the max floor temperature with your floor supplier.

Menu 5.1.3 - max diff flow line temp.**max diff compressor**

Setting range: 1 – 25 °C

Default value: 10 °C

max diff addition

Setting range: 1 – 24 °C

Default value: 7 °C

Here you set the maximum permitted difference between the calculated and actual supply temperature during compressor respectively add. heat mode.

max diff compressor

When the current supply temperature **deviates** from the set value compared to that calculated, the heat pump is forced to stop irrespective of the degree-minute value.

If the calculated flow temperature **exceeds** the calculated flow with set value, the degree minute value is set to 0. The compressor stops when there is only a heating requirement.

max diff addition

If "addition" is selected and activated in menu 4.2 and the present supply temp **exceeds** the calculated with set value, the additional heat is forced to stop.

Menu 5.1.4 - alarm actions

Select how you want the heat pump to alert you that there is an alarm in the display here.

The different alternatives are that the heat pump stops producing hot water (default setting) and/or reduces the room temperature.

**Caution**

If no alarm action is selected, it can result in higher energy consumption in the event of an alarm.

Menu 5.1.7 - br pmp al set.**min. brine out**

Setting range: -12 – 15 °C

Default value: -8 °C

max brine in

Setting range: 10 – 40 °C

Default value: 30 °C

min. brine out

Set the temperature at which the heat pump is to activate the alarm for low temperature in outgoing brine.

If "automatic reset" is selected, the alarm resets when the temperature has increased by 1 °C below the set value.

max brine in

Set the temperature at which the heat pump is to activate the alarm for high temperature in incoming brine.

Select "alarm activated" to activate the alarm.

Menu 5.1.8 - operating mode brine pump

op. mode

Setting range: intermittent, continuous, 10 days continuous

Default value: intermittent

Set the operating mode of the brine pump here.

intermittent: The brine pump starts 20 seconds before and stops at the same time as the compressor.

continuous: Continuous operation.

10 days continuous: Continuous operation for 10 days. Then the pump shifts to intermittent operation.



TIP

You can use "10 days continuous" at start-up to obtain continuous circulation during a start-up time in order to make it easier to bleed the system.

Menu 5.1.10 - op. mod heat med pump

op. mode

Setting range: auto, intermittent, continuous

Default value: auto

Set the operating mode of the heating medium pump here.

auto: The heating medium pump runs according to the current operating mode for F1226.

intermittent: The heating medium pump starts 20 seconds before and stops at the same time as the compressor.

continuous: Continuous operation.

Menu 5.1.12 - internal electrical addition

max connected el. add.

Setting range: 7 / 9 kW

Default values: 7 kW

set max electrical add.

Setting range: 0 - 9 kW

Default values: 6 kW

Here you set the max. electrical output of the internal electrical addition in F1226 and the fuse size for the installation.

Menu 5.1.13 - max inst. el.pwr (BBR)

max installed el.pwr (only this machine)

Setting range: 0.000 - 30.000 kW

Default values: 15.000 kW

In order to meet certain building regulations, it is possible to lock the device's maximum power output. In this menu you can set the value corresponding to the heat pump's maximum power connection for heating, hot water and cooling, if applicable. Note whether there are also external electrical components that are to be included. After the value has been locked, a weeks cooling-off period starts. After this period, parts in the machine must be replaced in order to obtain greater power. If the above building regulations are not applicable, do not use this setting.

Menu 5.4 - soft in/outputs

Here you can select which input on the terminal block (X1) the external contact function (page 22) is to be connected to.

Selectable inputs on terminal block AUX1-1 (X1:3-6).

Menu 5.5 - factory setting service

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.

For more information about the different parts of the start guide, see page 25.

Menu 5.8 - quick start

It is possible to start the compressor from here.



Caution

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



Caution

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

Menu 5.10 - change log

Read off any previous changes to the control system here.

The date, time and ID no. (unique to certain settings) and the new set value is shown for every change.



NOTE

The change log is saved at restart and remains unchanged after factory setting.

9 Service

Service actions



NOTE

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

When replacing components on F1226 only replacement parts from NIBE may be used.

Emergency mode



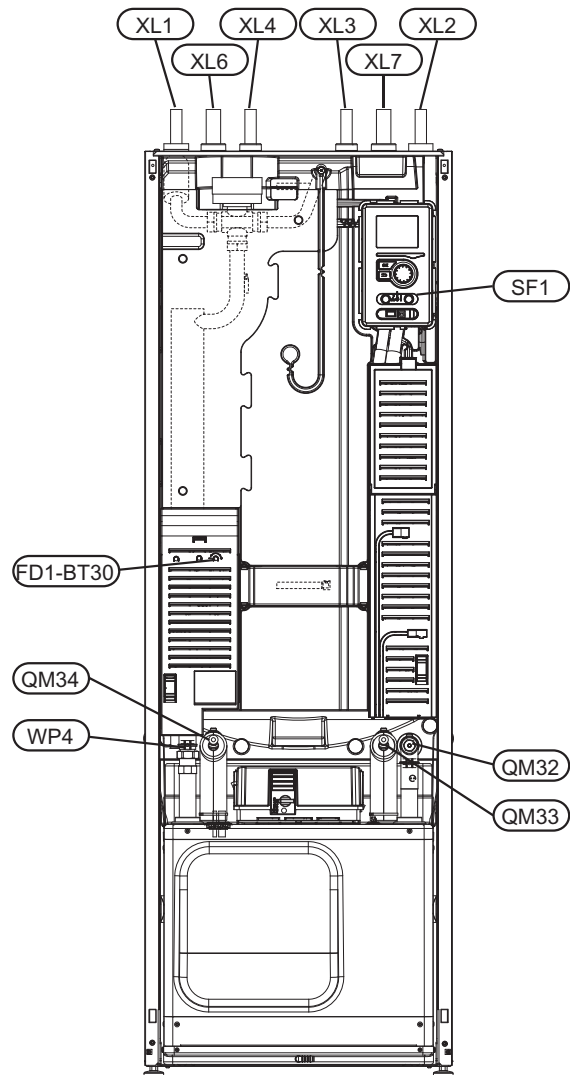
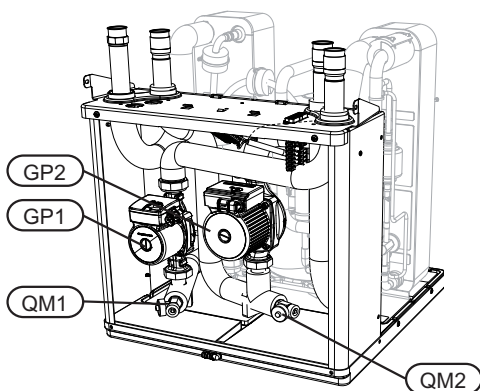
NOTE

Switch (SF1) must not be moved to "I" or "Δ" until F1226 has been filled with water. Otherwise the temperature limiter, thermostat, compressor and the immersion heater can be damaged.

Emergency mode is used in event of operational interference and in conjunction with service. Hot water is not produced in this mode.

Emergency mode is activated by setting switch (SF1) to "Δ". This means that:

- The status lamp illuminates yellow.
- The display is not lit and the control computer is not connected.
- The temperature at the immersion heater is controlled by the thermostat (FD1-BT30). It can be set either to 35 or 45 °C.
- The compressor and the brine system are off and only the heating medium pump and the electrical addition are active. The addition power in emergency mode is set in the immersion heater card (AA1). See page 21 for instructions.



Draining the water heater

The siphon principle is used to empty the hot water heater. This can be done either via the drain valve on the incoming cold water pipe or by inserting a hose into the cold water connection.

Draining the climate system

In order to carry out service on the climate system, it may be easier to drain the system first. This can be done in different ways depending on what needs doing:



NOTE

There may be some hot water when draining the heating medium side/climate system. There is a risk of scalding.

Draining the heating medium side in the cooling module

If, for example, the heating medium pump requires replacing or the cooling module requires servicing, drain the heating medium side as follows:

1. Close the shut-off valve for the heating medium side (QM32).
2. Connect a hose to the bleed valve (QM1) and open the valve. Some liquid will run out.
3. Air must get into the system for the remaining liquid to run out. Do this by slightly slackening off the connection at the shut-off valve (QM32) that joins the heat pump to the cooling module.

When the heating medium side is drained, the required service can be performed and/or replacement of any components carried out.

Draining the heating medium system in the heat pump

If the heat pump requires servicing, drain the heating medium side as follows:

1. Close the shut-off valves outside the heat pump for the heating medium side (return and flow line).
2. Connect a hose to the bleed valve (QM1) and open the valve. Some liquid will run out.
3. Air must get into the system for the remaining liquid to run out. Do this by slightly slackening off the connection at the shut-off valve that joins the climate system and the heat pump at the connection (XL2).

When the heating medium side is empty the requisite service can be carried out.

Draining the entire climate system

If the entire climate system requires draining, do this as follows:

1. Connect a hose to the bleed valve (QM1) and open the valve. Some liquid will run out.
2. Air must get into the system for the remaining liquid to run out. This is done by unscrewing the bleed screw on the highest radiator in the house.

When the climate system is empty the requisite service can be carried out.

Emptying the brine system

In order to service the brine system it may be easier to drain the system first. This can be done in different ways depending on what needs doing:

Draining the brine system in the cooling module

If, for example, the brine pump requires replacing or the cooling module requires servicing, drain the brine system by:

1. Close the shut-off valves to brine system (QM33) and (QM34).
2. Connect a hose to the drain valve (QM2), place the other opening of the hose in a container and open the valve. A small amount of brine will flow into the container.
3. Air must get into the system for the remaining brine to run out. Do this by slightly slackening off the connection at the shut-off valve (QM33) that joins the heat pump with the cooling module.

When the brine side is empty the requisite service can be carried out.

Draining the brine system in the heat pump

If the heat pump requires servicing, drain the brine system by:

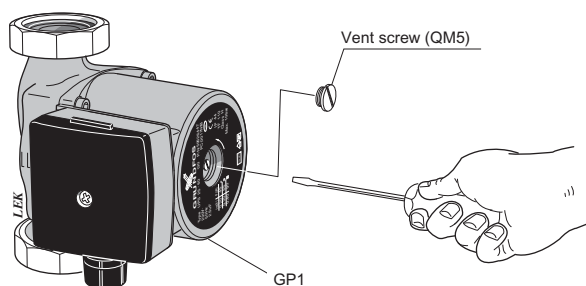
1. Close the shut-off valve outside the heat pump for the brine system.
2. Connect a hose to the drain valve (QM2), place the other opening of the hose in a container and open the valve. A small amount of brine will flow into the container.
3. Air must get into the system for the remaining brine to run out. Do this by slightly slackening off the connection at the shut-off valve that joins the brine side and the heat pump at the connection (XL7).

When the brine side is empty the requisite service can be carried out.

Helping the circulation pump to start

1. Shut off F1226 by setting the switch (SF1) to "0".
2. Open the service cover.
3. Remove the cover for the cooling module.
4. Loosen the venting screw (QM5) with a screwdriver. Hold a cloth around the screwdriver blade as a small amount of water may run out.
5. Insert a screwdriver and turn the pump motor around.
6. Screw in the venting screw (QM5).
7. Start F1226 by setting the switch (SF1) to "I" and check whether the circulation pump works.

It is usually easier to start the circulation pump with F1226 running, switch (SF1) set to "I". Helping the circulation pump to start is performed with F1226 running, be prepared for the screwdriver to jerk when the pump starts.



The image shows an example of what a circulation pump can look like.

Temperature sensor data

Temperature (°C)	Resistance (kOhm)	Voltage (VDC)
-40	351.0	3.256
-35	251.6	3.240
-30	182.5	3.218
-25	133.8	3.189
-20	99.22	3.150
-15	74.32	3.105
-10	56.20	3.047
-5	42.89	2.976
0	33.02	2.889
5	25.61	2.789
10	20.02	2.673
15	15.77	2.541
20	12.51	2.399
25	10.00	2.245
30	8.045	2.083
35	6.514	1.916
40	5.306	1.752
45	4.348	1.587
50	3.583	1.426
55	2.968	1.278
60	2.467	1.136
65	2.068	1.007
70	1.739	0.891
75	1.469	0.785
80	1.246	0.691
85	1.061	0.607
90	0.908	0.533
95	0.779	0.469
100	0.672	0.414

Pulling out the cooling module

The cooling module can be pulled out for service and transport.



Caution

The cooling module is easier to remove if it is drained first (see page 49).

Weight of the cooling module

Type (kW)	Weight (kg)
5	108
6	112
8	120
11	130



NOTE

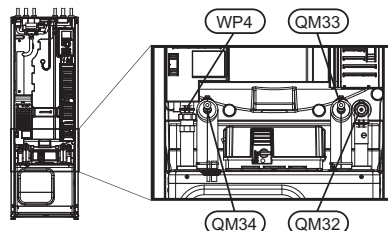
Shut off the heat pump and turn off the current on the safety breaker.



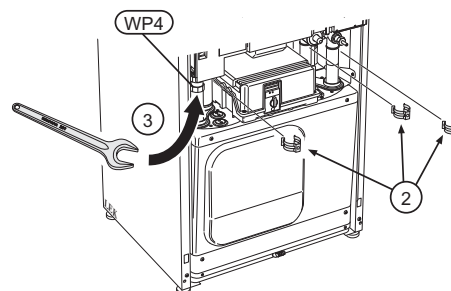
Caution

Remove the front cover according to the description on page 6.

- 1 Close the shut-off valves (QM32), (QM33) and (QM34). Drain the cooling module according to the instructions on page 49.

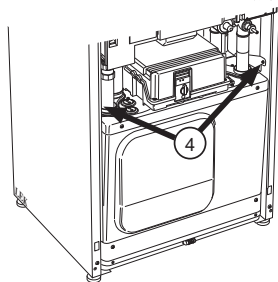


- 2 Pull off the lock catches.

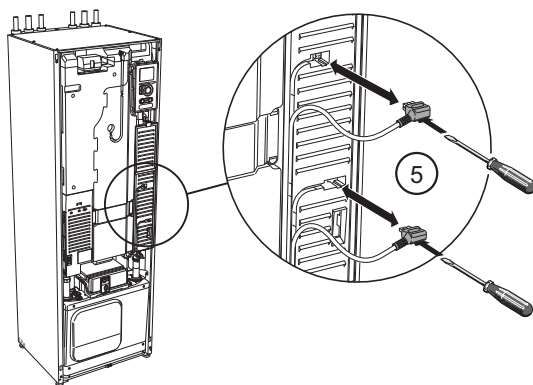


- 3 Disconnect the pipe connection at the pipe coupling (WP4).

- ④ Remove the two screws.

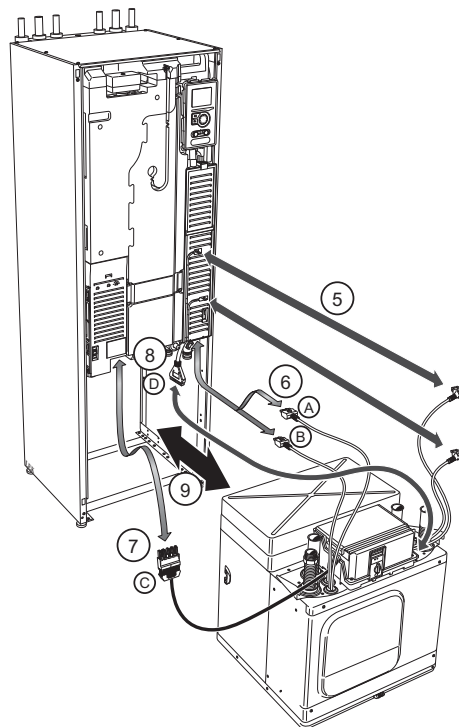


- ⑤ Remove the connections from the base card (AA2) using a screwdriver.



- ⑥ Disconnect the connectors (A) and (B) from the underside of the base card cabinet.
- ⑦ Disconnect the connector (C) from the immersion heater circuit board (AA1) using a screwdriver.
- ⑧ Disconnect the connector (D) from the joint circuit board (AA100).

- ⑨ Carefully pull out the cooling module.



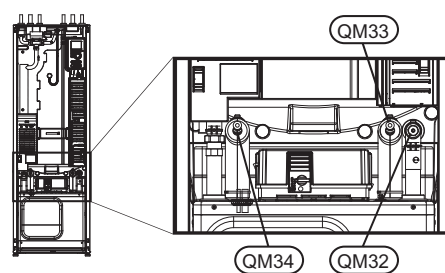
TIP

The cooling module is installed in reverse order.

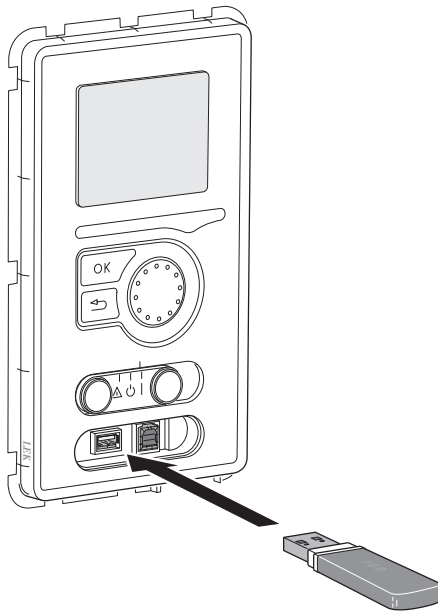


NOTE

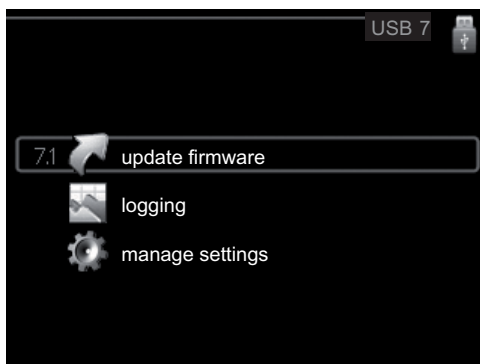
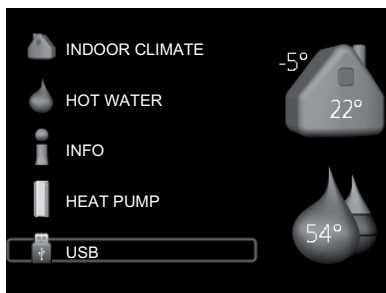
At reinstallation, the supplied O-rings must replace the existing ones at the connections to the heat pump (see image).



USB service outlet

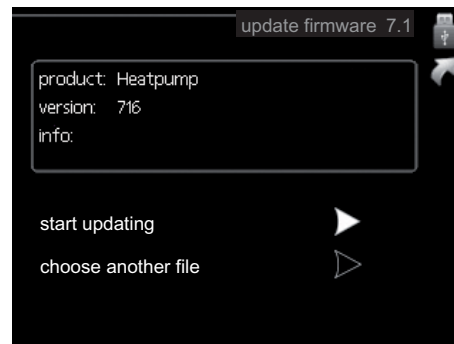


F1226 is equipped with a USB socket in the display unit. This USB socket can be used to connect a USB memory to update the software, save logged information and handle the settings in F1226.



When a USB memory is connected a new menu (menu 7) appears in the display.

Menu 7.1 - update firmware



This allows you to update the software in F1226.



NOTE

For the following functions to work the USB memory must contain files with software for F1226 from NIBE.

The fact box at the top of the display shows information (always in English) of the most probable update that the update software has selected from the USB memory.

This information states which product the software is intended for, the software version and general information about them. If you wish to select another file than the one selected, the correct file can be selected by "choose another file".

start updating

Select "start updating" if you want to start the update. You are asked whether you really want to update the software. Respond "yes" to continue or "no" to undo.

If you responded "yes" to the previous question the update starts and you can now follow the progress of the update on the display. When the update is complete F1226 restarts.



NOTE

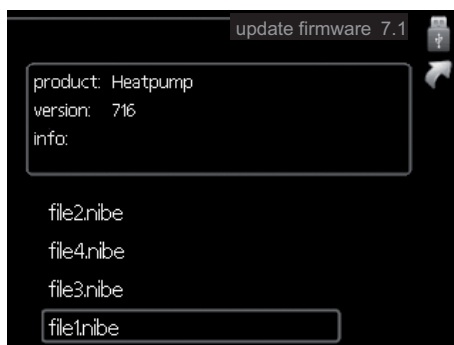
A software update does not reset the menu settings in F1226.



NOTE

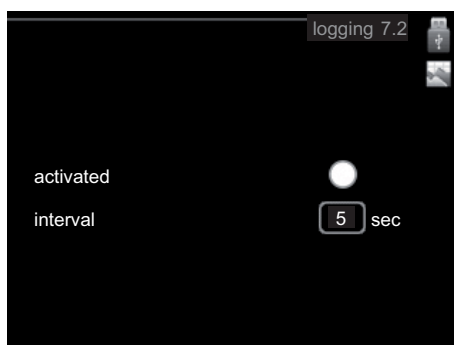
If the update is interrupted before it is complete (for example power cut etc.) the software can be reset to the previous version if the OK button is held in during start up until the green lamp starts to illuminate (takes about 10 seconds).

choose another file



Select "choose another file" if you do not want to use the suggested software. When you scroll through the files, information about the marked software is shown in a fact box just as before. When you have selected a file with the OK button you will return to the previous page (menu 7.1) where you can choose to start the update.

Menu 7.2 - logging



Setting range: 1 s – 60 min
Default setting range: 5 s

Set whether the present measurement values from F1226 are to be saved in a log on the USB memory.

Log for longer periods

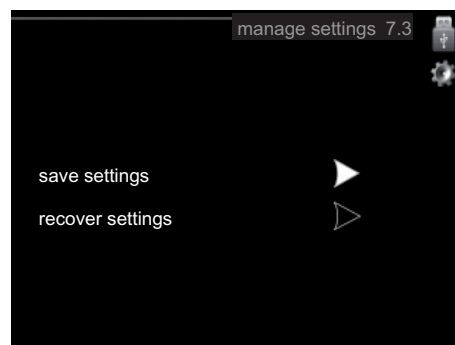
1. Set the desired interval between loggings.
2. Tick "activated".
3. Mark "read log settings" and press the OK button.
4. The present values from F1226 are saved in a file in the USB memory at the set interval until "activated" is unticked.



Caution

Untick "activated" before removing the USB memory.

Menu 7.3 - manage settings



Here you can manage (save as or retrieve from) all the menu settings (user and service menus) in F1226 with a USB memory.

Via "save settings" you save the menu settings to the USB memory in order to restore them later or to copy the settings to another F1226.



NOTE

When you save the menu settings to the USB memory you replace any previously saved settings on the USB memory.

Via "recover settings" you reset all menu settings from the USB memory.



NOTE

Reset of the menu settings from the USB memory cannot be undone.

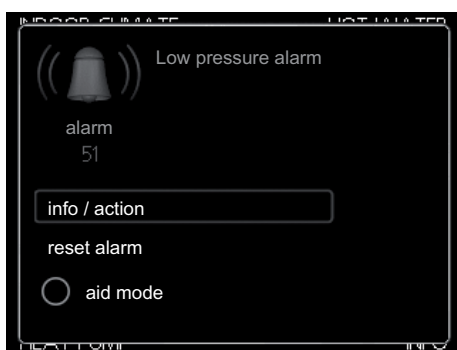
10 Disturbances in comfort

In most cases, the heat pump notes operational interference (operational interference can lead to disturbance in comfort) and indicates this with alarms and shows action instructions 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 fault source. See page 42 for more information about menu 3.1.

Manage alarm



In the event of an alarm, some kind of malfunction has occurred, which is indicated by the status lamp changing from green continuously to red continuously. In addition, an alarm bell appears in the information window.

Alarm

In the event of an alarm with a red status lamp a malfunction has occurred that the heat pump cannot remedy itself. In the display, by turning the control knob and pressing the OK button, you can see the type of alarm it is and reset it. You can also choose to set the heat pump to aid mode.

info / action Here you can read what the alarm means and receive tips on what you can do to correct the problem that caused the alarm.

reset alarm In most cases it is enough to select "reset alarm" to correct the problem that caused the alarm. If a green light illuminates after selecting "reset alarm" the alarm has been remedied. If a red light is still visible and a menu called "alarm" is visible in the display, the problem that caused the alarm remains. If the alarm disappears and then returns, see the troubleshooting section (page 55).

aid mode "aid mode" is a type of emergency mode. This means that the heat pump produces heat and/or 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 heat and/or hot water.

Selecting "aid mode" is not the same as correcting the problem that caused the alarm. The status lamp will therefore continue to be red.

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:

- The switch's (SF1) position.
- Group and main fuses of the accommodation.
- The property's earth circuit breaker.
- The heat pump's miniature circuit breaker (FA1).
- The heat pump's temperature limiter (FD1).
- Correctly set load monitor (if installed).

Low hot water temperature or a lack of hot water

- Heat pump in incorrect operating mode.
 - If mode "manual" is selected, select "addition".
- 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.
- Too low or no operating prioritisation of hot water.
 - Enter menu 4.9.1 and increase the time for when hot water is to be prioritised.
- Closed or choked filling valve for the hot water heater.
 - Open the valve.

Low room temperature

- Closed thermostats in several rooms.
 - Set the thermostats to max in as many rooms as possible. Adjust the room temperature via menu 1.1 instead of choking the thermostats.
- Heat pump in incorrect operating mode.
 - Enter menu 4.2. If mode "auto" is selected, select a higher value on "stop heating" in menu 4.9.2.
 - If mode "manual" is selected, select "heating". If this is not enough, select "addition".
- Too low set value on the automatic heating control.
 - Enter menu 1.1 (temperature) and adjust the heat curve offset of the heat curve. If the room temperature is only low in cold weather the curve slope in the menu 1.9.1 (heating curve) needs to be adjusted up.
- Too low or no operating prioritisation of heat.

- Enter menu 4.9.1 and increase the time for when heating is to be prioritised.
- External switch for changing the room heating activated.
 - Check any external switches.
- Circulation pump(s) (GP1 and/or GP2) stopped.
 - See section "Helping the circulation pump to start" on page 50.
- Air in the climate system.
 - Vent the climate system (see page 24).
- Closed valves (QM20), (QM32) to the climate system.
 - Open the valves.

High room temperature

- Too high set value on the automatic heating control.
 - Enter menu 1.1 (temperature) and adjust the heat curve offset downwards. If the room temperature is only high in cold weather the curve slope in menu 1.9.1 (heating curve) needs to be adjusted down.
- External switch for changing the room heating activated.
 - Check any external switches.

Low system pressure

- Not enough water in the climate system.
 - Top up the water in the climate system (see page 24).

The compressor does not start

- There is no heating requirement.
 - The heat pump does not call on heating nor hot water.
- Minimum time between compressor starts has not been reached.
 - Wait 30 minutes and check if the compressor has started.
- Alarm tripped.
 - Follow the display instructions.

11 Accessories

Auxiliary relay HR 10

Part no. 089 423

Buffer vessel UKV

UKV 100

Part no. 088 207

UKV 200

Part no. 088 300

Exhaust air module FLM

FLM is an exhaust air module specially designed to combine recovery of mechanical exhaust air with an energy collector in rock.

FLM

Part no. 067 011

Bracket pack FLM

Part no. 067 083

Extra relay card EXC 40

Extra relay card required if ground heat pump and/or hot water circulation pump is to be connected to F1226.

The extra relay card is installed inside the heat pump.

Part no. 067 072

Filling valve kit KB R25

Filling valve kit for filling brine in the collector hose for rock heat pumps. Includes dirt filter and insulation.

KB R25 (max 12 kW)

Part no. 089 368

Level monitor NV 10

Part no. 089 315

Load monitor EBV 200

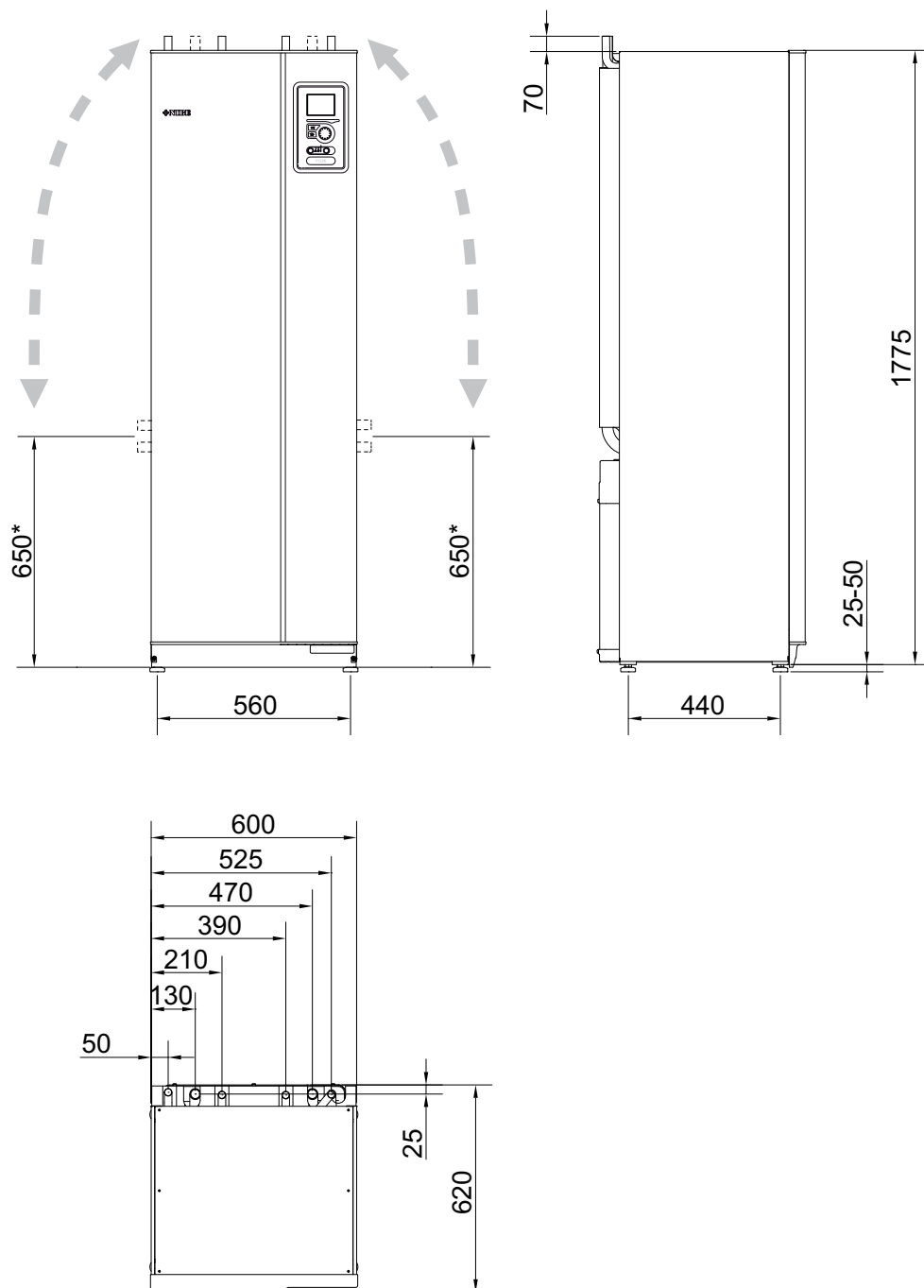
Part no. 418 346

Room sensor RTS 40

Part no. 067 065

12 Technical data

Dimensions and setting-out coordinates



* This dimension applies at 90° angle on the brine pipes (side connection). The dimension can vary approx. ± 100 mm in height as the brine pipes partially consist of flexible pipes.

Technical specifications



3x400V

3x400V			5	6	8	11
Output data at nom flow <small>Refers to performance of heat pump excl. circulation pumps</small>						
0/35						
Rated output	kW	4.60	5.56	7.63	11.01	
Cooling output	kW	3.51	4.33	6.01	8.59	
Electrical output	kW	1.09	1.24	1.62	2.42	
COP	-	4.22	4.50	4.71	4.55	
0/50						
Rated output	kW	3.63	4.45	6.32	10.32	
Cooling output	kW	2.42	3.06	4.44	7.14	
Electrical output	kW	1.21	1.39	1.88	3.18	
COP	-	3.01	3.20	3.36	3.25	
Output data according to EN 14511						
0/35						
Rated output	kW	4.41	5.34	7.33	10.65	
Electrical output	kW	1.14	1.31	1.70	2.62	
COP _{EN14511}	-	3.87	4.09	4.31	4.06	
0/45						
Rated output	kW	3.77	4.58	6.74	10.14	
Electrical output	kW	1.20	1.38	1.86	3.11	
COP _{EN14511}	-	3.14	3.31	3.62	3.26	
Additional power	kW	1/2/3/4/5/6/7 (switchable to 2/4/6/9)				
Electrical data						
Rated voltage		400V 3NAC 50 Hz				
Max operating current, compressor (Including Control system and Circulation pumps)	A _{rms}	9.5(1-phase)	4.6	6.6	9.0	
Starting current	A _{rms}	23	18	23	29	
Max permitted impedance at connection point ¹⁾	ohm	-	-	-	-	
Max operating current heat pump incl. 1 – 2 kW immersion heater (Recommended fuse rating)	A _{rms}	18(20)	13(16)	15(16)	18(20)	
Max operating current heat pump incl. 3 – 4 kW immersion heater (Recommended fuse rating)	A _{rms}	18(20)	13(16)	15(16)	18(20)	
Max operating current heat pump incl. 5 – 6 kW immersion heater (Recommended fuse rating)	A _{rms}	18(20)	13(16)	15(16)	18(20)	
Max operating current heat pump including 7 kW immersion heater, connected upon delivery (Recommended fuse rating)	A _{rms}	18(20)	19(20)	21(25)	23(25)	
Max operating current heat pump including 9 kW immersion heater, requires switching (Recommended fuse rating)	A _{rms}	24(25)	19(20)	22(25)	24(25)	
Output, Brine pump	W	80 – 140	80 – 140	80 – 140	130 – 250	
Output, Heating medium pump	W	50 – 80	50 – 80	50 – 80	80 – 140	
IP class		IP 21				
Refrigerant circuit						
Type of refrigerant		R407C				
Volume	kg	1.1	1.4	1.5	1.5	
Cut-out value pressostat HP	MPa	2.9 (29 bar)				

3x400V		5	6	8	11
Difference pressostat HP	MPa	-0.7 (-7 bar)			
Cut-out value pressostat LP	MPa	0.15 (1.5 bar)			
Difference pressostat LP	MPa	0.15 (1.5 bar)			
Brine circuit					
Max system pressure brine	MPa	0.3 (3 bar)			
Min flow	l/s	0.18	0.22	0.30	0.43
Nominal flow	l/s	0.22	0.30	0.42	0.64
Max external avail. press at nom flow	kPa	57	49	39	57
Max/Min incoming Brine temp	°C	see diagram			
Min. outgoing brine temp.	°C	-10			
Heating medium circuit					
Max system pressure heating medium	MPa	0.4 (4 bar)			
Min flow	l/s	0.07	0.09	0.12	0.18
Nominal flow	l/s	0.09	0.13	0.16	0.25
Max external avail. press at nom flow	kPa	54	53	47	57
Max/Min heating medium temp	°C	see diagram			
Noise output (L _{WA}) according to EN 12102 at 0/35	dB(A)	43	43	44	44
Sound pressure level (L _{PA}) calculated values according to EN ISO 11203 at 0/35 and a distance of 1 m	dB(A)	28	28	29	29
Pipe connections					
Brine ext diam. CU pipe	mm	28			
Heating medium ext diam. CU pipes	mm	22			28
Hot water connection external diam	mm	22			
Cold water connection external diam	mm	22			

Miscellaneous

Miscellaneous			5	6	8	11
Water heater						
Volume water heater		l	180			
Max pressure in water heater		MPa	0.9 (9 bar)			
Dimensions and weight						
Width		mm	600			
Depth		mm	620			
Height		mm	1800			
Required ceiling height ²⁾		mm	1950			
Weight complete heat pump		kg	303	307	320	330
Weight only cooling module		kg	108	112	120	130
Part no. 3x400V, Stainless steel			-	065 262	065 263	065 265
Part no. 3x400V, Copper			065 221	065 222	065 223	065 225

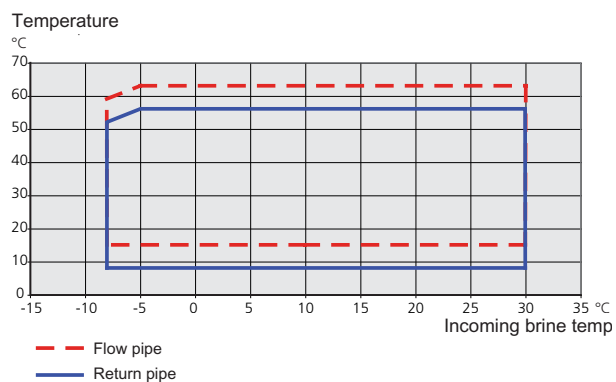
¹⁾Max. permitted impedance in the mains connected point in accordance with EN 61000-3-11. Start currents can cause short voltage dips that could affect other equipment in unfavourable conditions. If the impedance in the mains connection point is higher than that stated it is possible that interference will occur. If the impedance in the mains connection point is higher than that stated check with the power supplier before purchasing the equipment.

²⁾With feet dismantled the height is approx. 1930 mm.

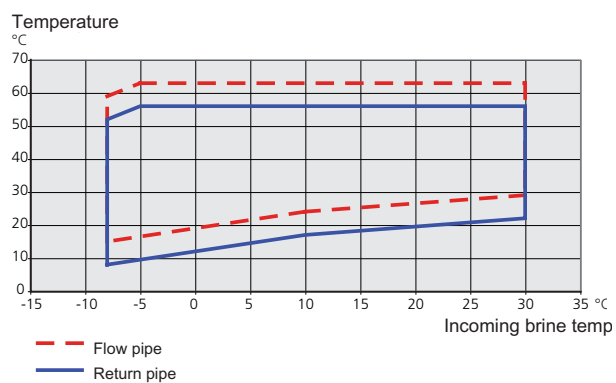
Working range heat pump, compressor operation

The compressor provides a flow temperature up to 63 °C, the remainder (up to 70 °C) is obtained using the additional heat.

5-8 kW

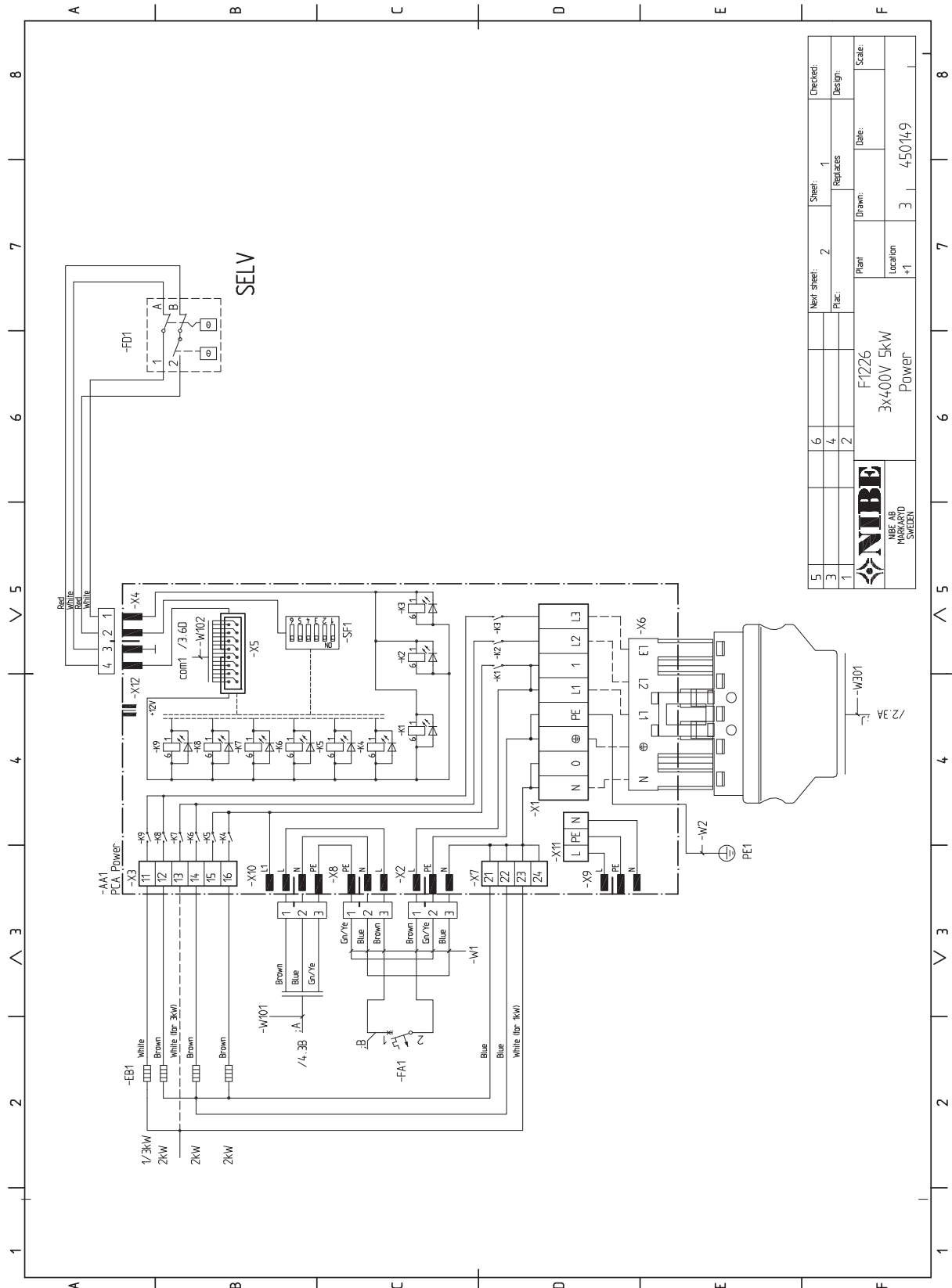


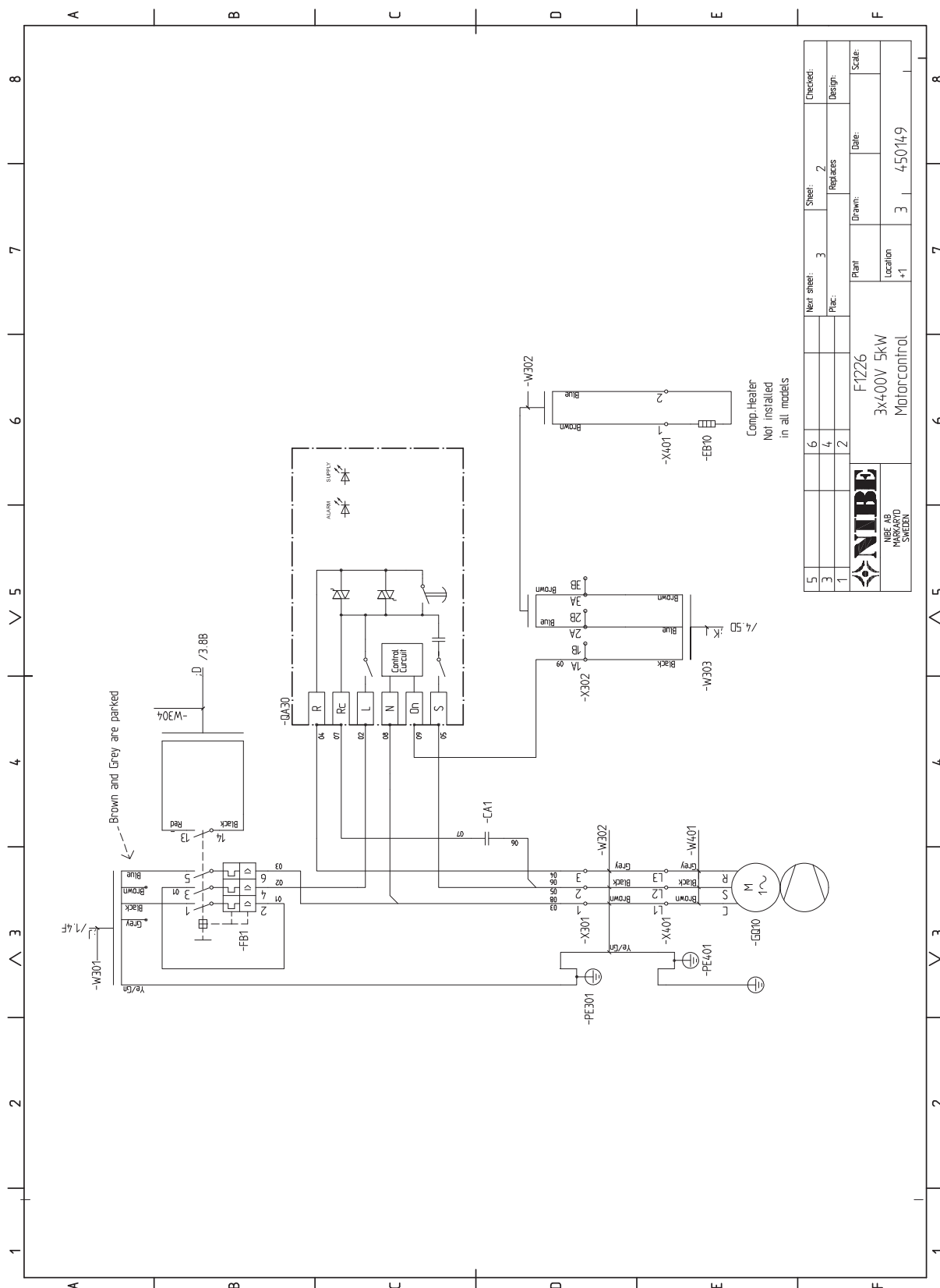
11 kW



Electrical circuit diagram

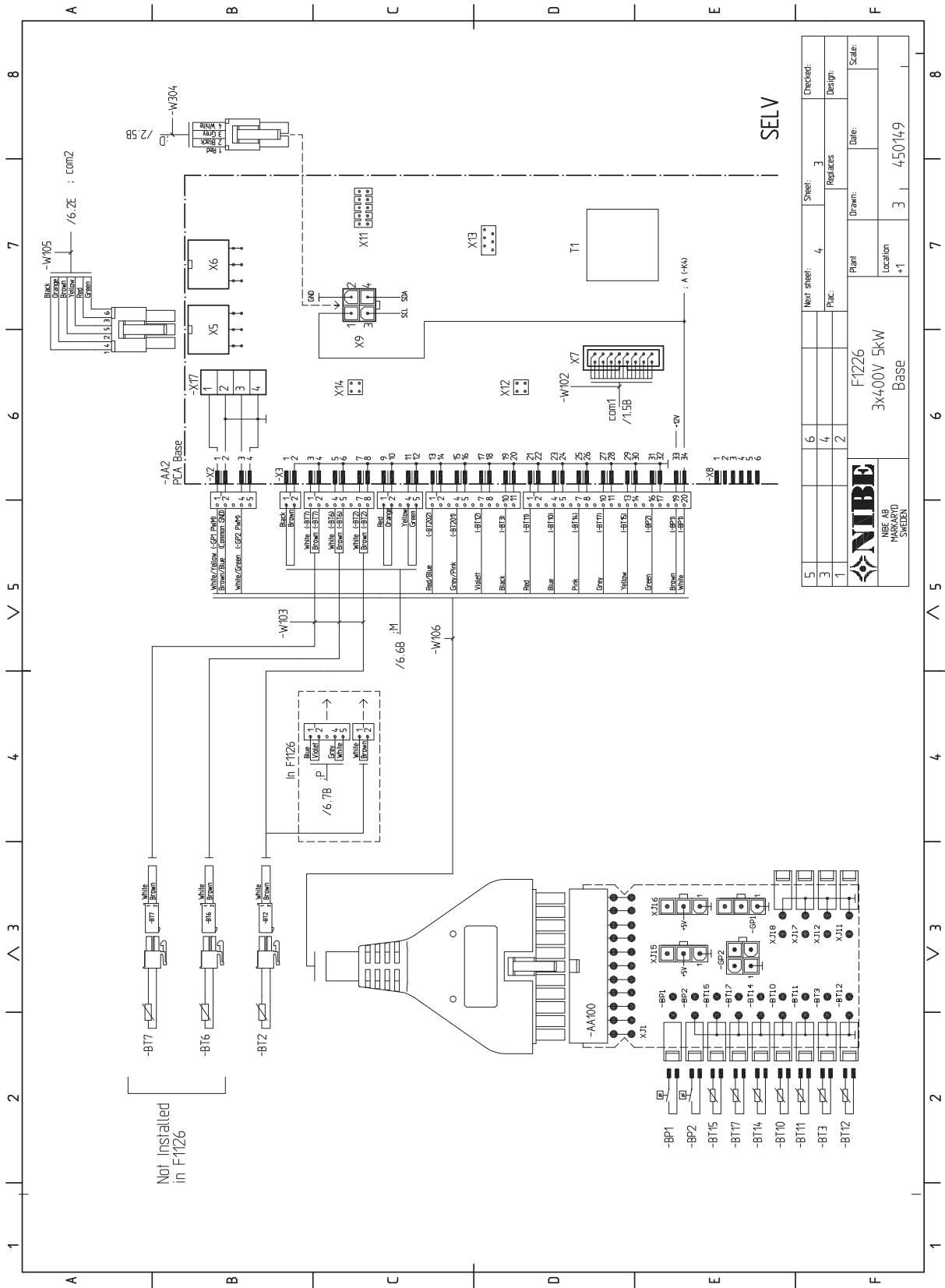
3x400V 5 kW

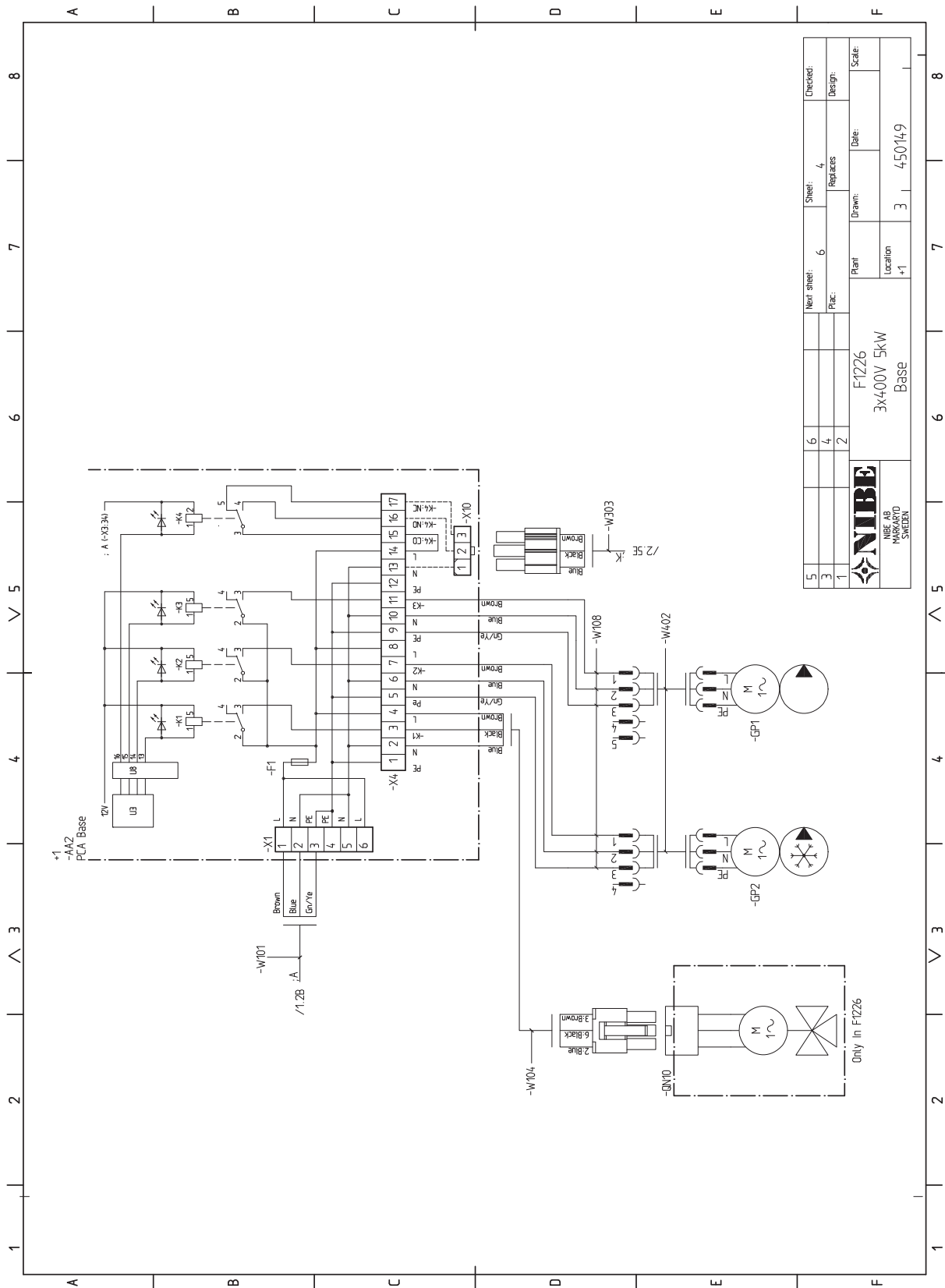




5	6	6	3	2	Checked:
3	4	4	3	2	Design:
1	2	2	3	2	Scale:
NIBE			F1226		
NIBE AB			3x400V 5kW		
MOTALA, SWEDEN			Motorcontrol		
			Location		
			+1		
			Date:		
			450149		

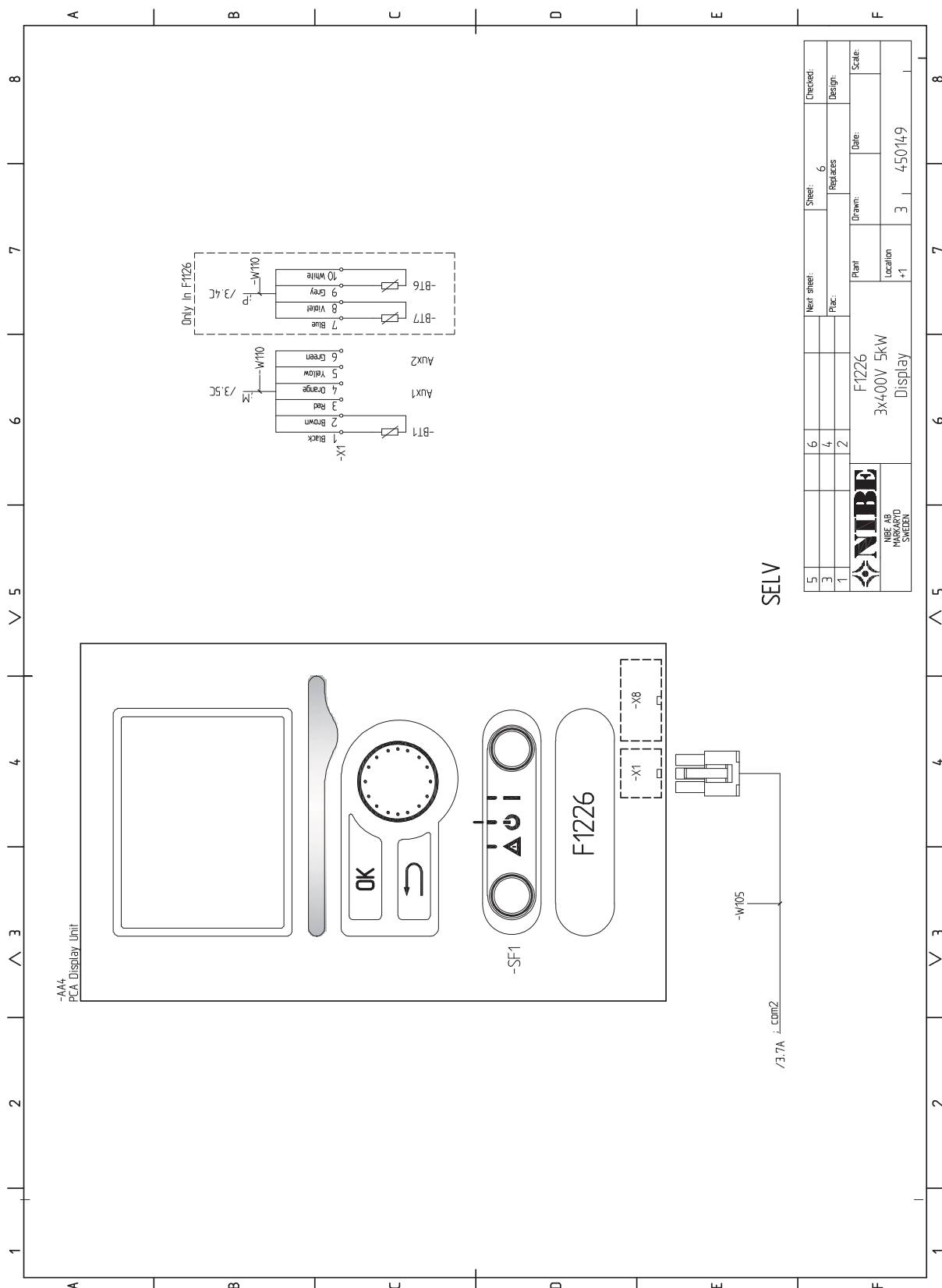
Comp. Heater
Not installed
in all models





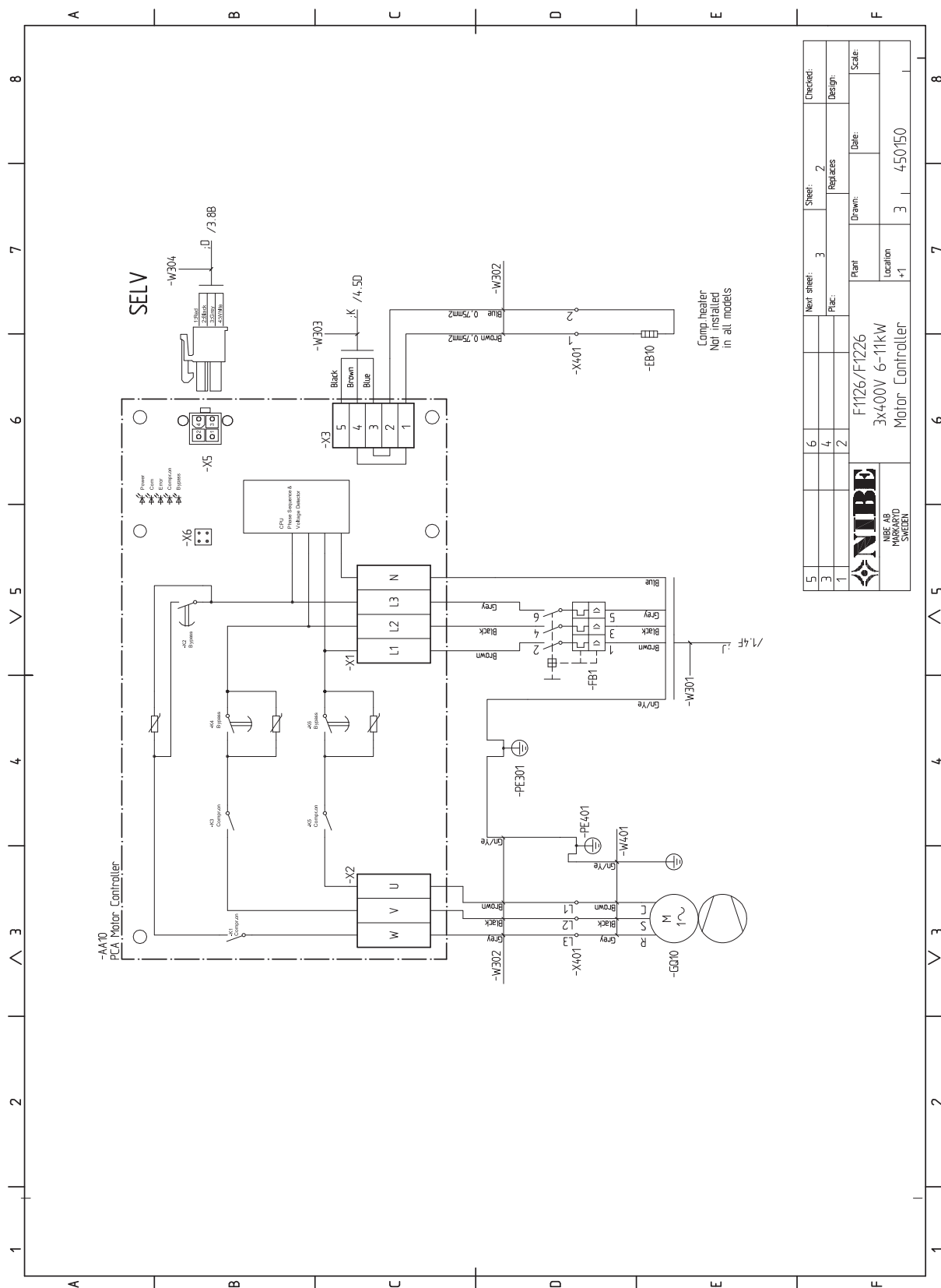
5		6		Next sheet	6	Sheet	4	Checked:
3		4		Plac.		Replaces		Design:
1		2		Plant		Drawn:		Date:
				F1226		3x400V 5kW		Scale:
				Base		Location		
						+1		
						3		450149

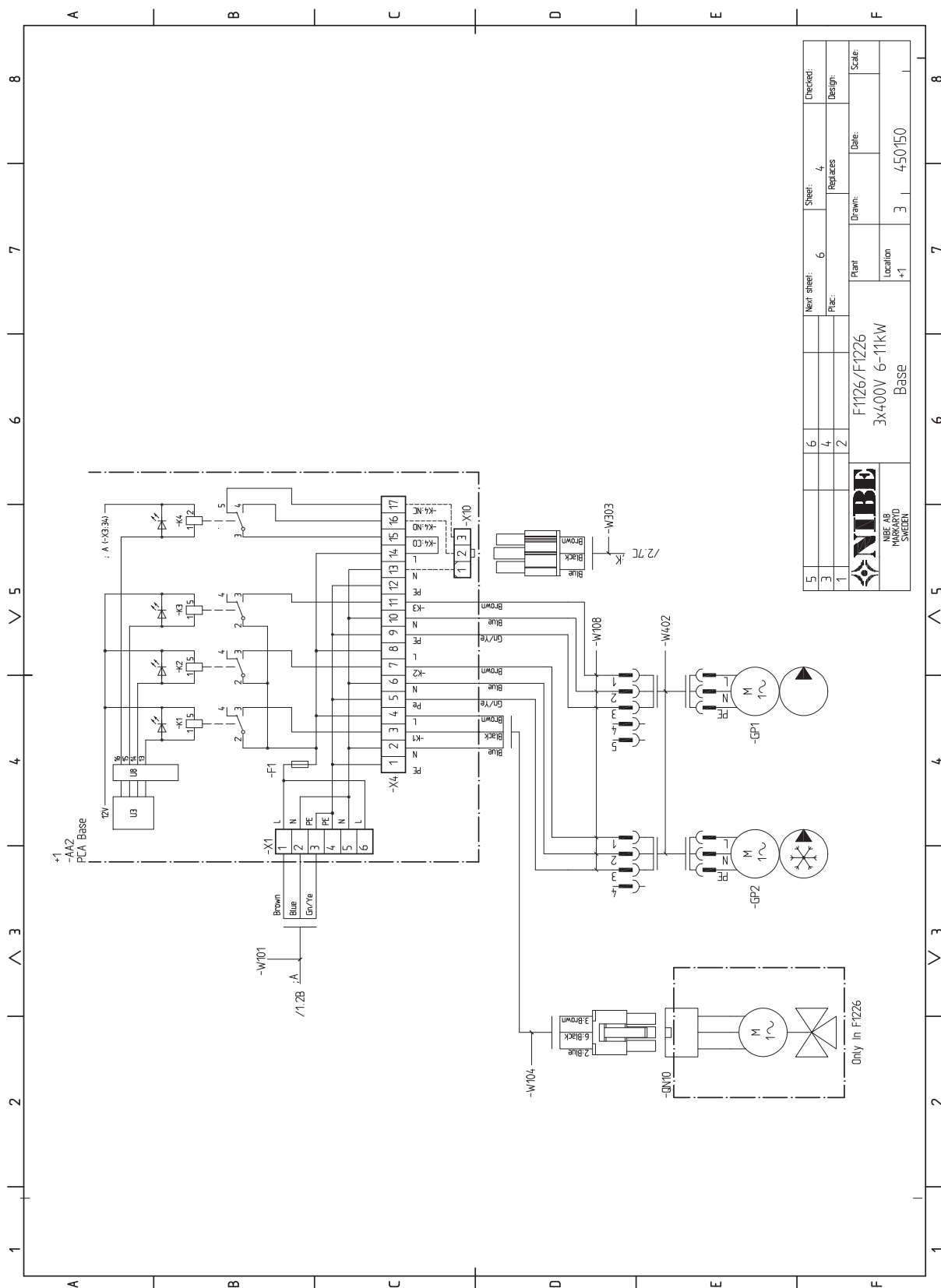
NIBE
NIBE AB
MÖRBY
SWEDEN



1 — 2 — 3 — 4 — 5 — 6 — 7 — 8







13 Item register

Item register

A

Accessibility, electrical connection, 18
Accessories, 57
Assembly, 5

B

Back button, 33
Brine side, 13

C

Cable lock, 19
Commissioning and adjusting, 24
 Filling and venting, 24
 Post adjustment and bleeding, 30
 Preparations, 24
 Start guide, 25
Connecting accessories, 23
Connecting external operating voltage for the control system, 19
Connecting the climate system, 14
Connecting the hot water heater, 14
Connections, 19
Contact for activation of "external adjustment", 22
Contact for activation of "temporary lux", 22
Contact information, 4
Control, 33, 37
 Control - Introduction, 33
 Control - Menus, 37
Control - Introduction, 33
 Display unit, 33
 Menu system, 34
Control knob, 33
Control - Menus, 37
 Menu 1 - INDOOR CLIMATE, 37
 Menu 2 - HOT WATER, 41
 Menu 3 - INFO, 42
 Menu 4 - HEAT PUMP, 43
 Menu 5 - SERVICE, 45
Cooling section, 11

D

Delivery and handling, 5
 Assembly, 5
 Drawing out the cooling module, 5
 Installation area, 5
 Removing parts of the insulation, 7
 Removing the covers, 6
 Supplied components, 6
 Transport, 5
Dimensions and pipe connections, 13
Dimensions and setting-out coordinates, 58
Display, 33
Display unit, 33
 Back button, 33
 Control knob, 33
 Display, 33
 OK button, 33
 Status lamp, 33
 Switch, 33
Disturbances in comfort, 55
 Manage alarm, 55
 Troubleshooting, 55
Docking alternatives, 15
 Extra electric hot water heater, 15
 Free cooling, 15
 Ground water system, 16
 Neutralization vessel, 15
 Under floor heating systems, 16
 Ventilation recovery, 15
Draining the climate system, 49

Draining the hot water heater, 49
Drawing out the cooling module, 5, 51

E

Electrical addition - maximum output, 20
 Setting max electrical output, 20
 Switching to maximum electrical output, 20
Electrical cabinets, 9
Electrical circuit diagram, 62
 3x400V 5 kW, 62
 3x400V 6-11 kW, 67
Electrical connections, 17
 Accessibility, electrical connection, 18
 Cable lock, 19
 Connecting accessories, 23
 Connecting external operating voltage for the control system, 19
 Connections, 19
 Electrical addition - maximum output, 20
 External connection options, 22
 General, 17
 Miniature circuit-breaker, 17
 Motor cut-out, 17
 Optional connections, 22
 Outdoor sensor, 20
 Power connection, 19
 Removing the cover, base board, 18
 Removing the cover, immersion heater circuit board, 18
 Removing the hatch, input circuit board, 18
 Settings, 20
 Standby mode, 21
 Temperature limiter, 17
Emptying the brine system, 50
External connection options, 22
 Contact for activation of "external adjustment", 22
 Contact for activation of "temporary lux", 22
 Possible selection for AUX inputs, 22
 Switch for external blocking of addition and/or compressor, 22
 Switch for external blocking of heating, 22
 Temperature sensor, external flow line, 22
 Temperature sensor, hot water top, 22

F

Filling and venting, 24
 Filling and venting the brine system, 24
 Filling and venting the climate system, 24
 Filling the hot water heater, 24
 Symbol key, 25
Filling and venting the brine system, 24
Filling and venting the climate system, 24
Filling the hot water heater, 24

H

Heating medium side, 14
 Connecting the climate system, 14
Helping the circulation pump to start, 50
Help menu, 36
Hot water heater, 14
 Connecting the hot water heater, 14

I

Important information, 2
 Safety information, 2
Inspection of the installation, 3
Installation area, 5

M

Manage alarm, 55
Marking, 2
Menu 1 - INDOOR CLIMATE, 37
Menu 2 - HOT WATER, 41

Menu 3 - INFO, 42
Menu 4 - HEAT PUMP, 43
Menu 5 - SERVICE, 45

Menu system, 34
 Help menu, 36
 Operation, 35
 Scroll through the windows, 36
 Selecting menu, 35
 Selecting options, 35
 Setting a value, 36

Miniature circuit-breaker, 17
Motor cut-out, 17
 Resetting, 17

O

OK button, 33
Operation, 35
Optional connections, 22
Outdoor sensor, 20

P

Pipe connections, 12
 Brine side, 13
 Dimensions and pipe connections, 13
 Docking alternatives, 15
 General, 12
 Heating medium side, 14
 Hot water heater, 14
 Pipe dimensions, 13
 Symbol key, 12
 System diagram, 12
Pipe dimensions, 13
Possible selection for AUX inputs, 22
Post adjusting the room temperature, 32
Post adjustment and bleeding, 30
 Post adjusting the room temperature, 32
 Pump capacity diagrams, collector side, 30
 Pump capacity diagrams, heating medium side, 31
 Readjusting, venting, heat medium side, 32
Power connection, 19
Preparations, 24
Pump capacity diagrams, collector side, 30
Pump capacity diagrams, heating medium side, 31

R

Readjusting, venting, heat medium side, 32
Removing parts of the insulation, 7
Removing the cover, base board, 18
Removing the cover, immersion heater circuit board, 18
Removing the covers, 6
Removing the hatch, input circuit board, 18

S

Safety information, 2
 Contact information, 4
 Inspection of the installation, 3
 Marking, 2
 Serial number, 2
 Symbols, 2
Scroll through the windows, 36
Selecting menu, 35
Selecting options, 35
Serial number, 2
Service, 49
 Service actions, 49
Service actions, 49
 Draining the climate system, 49
 Draining the hot water heater, 49
 Drawing out the cooling module, 51
 Emptying the brine system, 50
 Helping the circulation pump to start, 50
 Standby mode, 49

 Temperature sensor data, 51
 USB service outlet, 53
Setting a value, 36
Settings, 20
Standby mode, 49
 Power in emergency mode, 21
Start guide, 25
Status lamp, 33
Supplied components, 6
Switch, 33
Switch for external blocking of addition and/or compressor, 22
Switch for external blocking of heating, 22
Symbol key, 12, 25
Symbols, 2
System diagram, 12

T

Technical data, 58
 Dimensions and setting-out coordinates, 58
 Electrical circuit diagram, 62
 Technical Data, 59
Technical Data, 59
 Working range heat pump, 61
Temperature limiter, 17
 Resetting, 17
Temperature sensor, external flow line, 22
Temperature sensor, hot water top, 22
Temperature sensor data, 51
The heat pump design, 8
 Component list cooling section, 11
 Component list electrical cabinets, 9
 Component location cooling section, 11
 Component location electrical cabinets, 9
 Component locations, 8
 List of components, 8
Transport, 5
Troubleshooting, 55

U

USB service outlet, 53

W

Working range heat pump, 61

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

