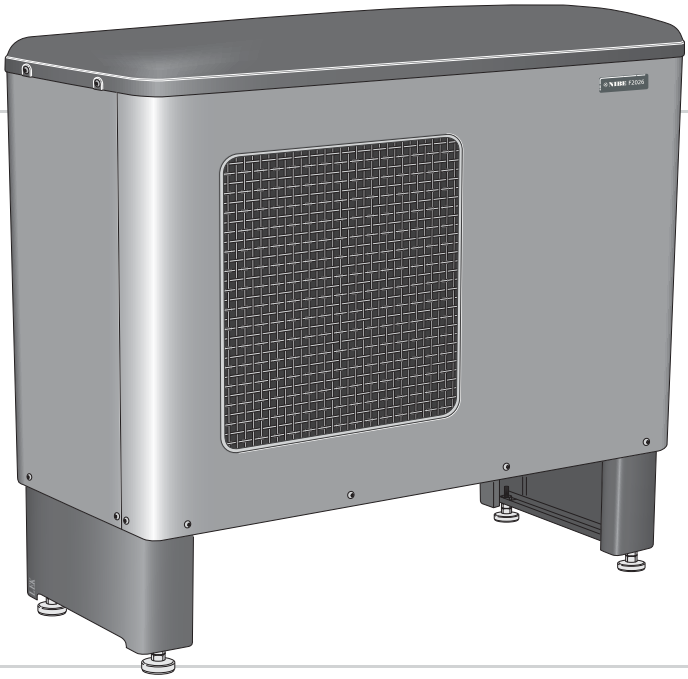


Installer manual

NIBE™ F2026

Air/water heat pump

IHB GB 1244-2
031865

Table of Contents

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.

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

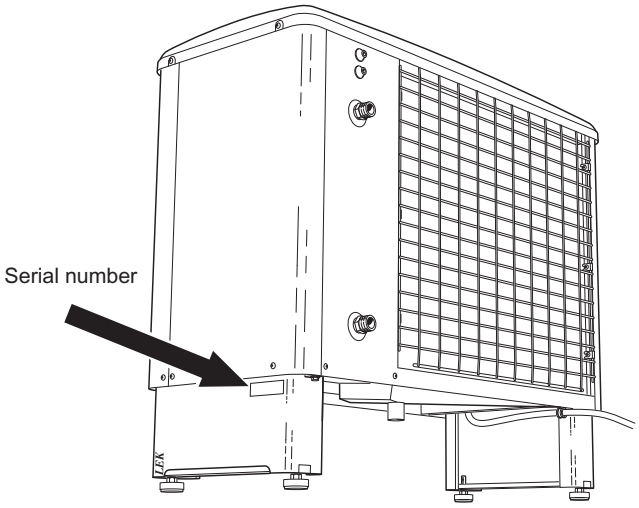
F2026 is CE marked and fulfils IP24.

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.

IP24 means that the product is secure against penetration by objects with a diameter larger than or equivalent to 12.5 mm and that the product is protected against drops from all directions.

Serial number

The serial number can be found on the product's foot.



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
Heating medium (page 12)				
	System flushed			
	System vented			
	Particle filter			
	Shut-off and drain valve			
	Charge flow set			
Electricity (page 23)				
	Fuses property			
	Safety breaker			
	Earth circuit-breaker			
	Heating cable type/effect			
	Fuse size, heating cable (F3)			
	Communication cable connected			
Miscellaneous				
	Condensation water pipe			
	Insulation condensation water pipe, thickness (if KVR 10 is not used)			

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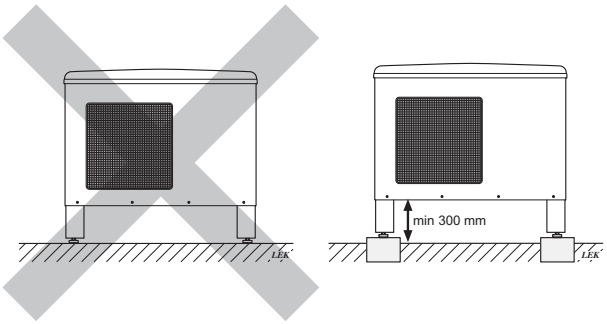
2 Delivery and handling

Transport and storage

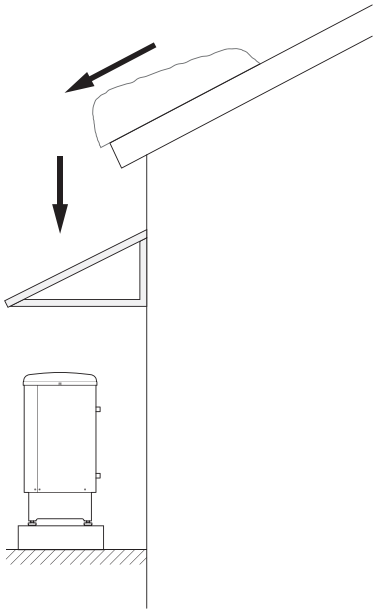
F2026 must be transported and stored vertically.

Assembly

- Place F2026 outdoors on a solid level base that can take the weight, preferably a concrete foundation. If concrete slabs are used they must rest on asphalt or shingle.
- The concrete foundation or slabs must be positioned so that the lower edge of the evaporator is at the level of the average local snow depth, although a minimum of 300 mm.
- The F2026 should not be positioned next to sensitive walls, for example, next to a bedroom.
- Also ensure that the placement does not inconvenience the neighbours.
- F2026 must not be placed so that recirculation of the outdoor air can occur. This causes lower output and impaired efficiency.
- The evaporator should be sheltered from direct wind. Place F2026 protected from wind against the evaporator.
- Large amounts of condensation water as well as melt water from defrosting can be produced. Condensation water must be led off to a drain or similar (see page 6).
- Care must be exercised so that the heat pump is not scratched during installation.



Do not place F2026 directly on the lawn or other non solid surface.



If there is a risk of snow slip from roof, a protective roof or cover must be erected to protect the heat pump, pipes and wiring.

Condensation water trough

The condensation water trough is used to collect and lead away condensation water from the heat pump.

NOTE

It is important to the heat pump function that condensation water is led away and that the drain for the condensation water run off is not positioned so that it may cause damage to the house.

NOTE

Pipe with heating cable for draining the condensation water trough are not included.

NOTE

To ensure this function the accessory KVR 10 should be used.

NOTE

The electrical installation and wiring must be carried out under the supervision of an authorised electrician.

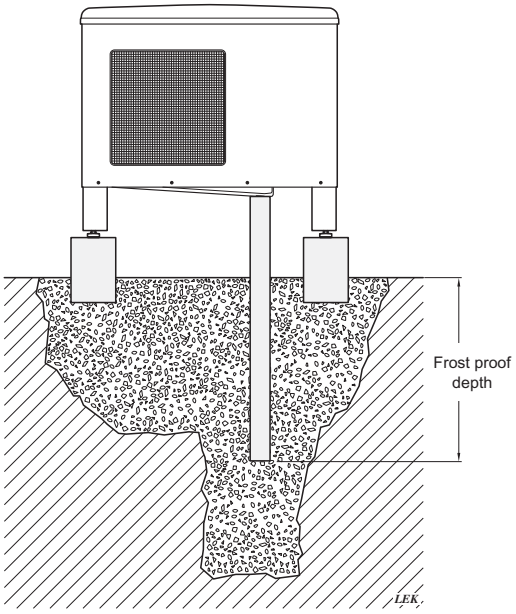
Caution

If none of the recommended alternatives is used good lead off of condensation water must be assured.

- The condensation water (up to 50 litres/day) collected in the trough should be routed by pipe to an appropriate drain, it is recommended that the shortest outdoor stretch possible is used.
- The section of the pipe that can be affected by frost must be heated by the heating cable to prevent freezing.
- Route the pipe downward from F2026.
- The outlet of the condensation water pipe must be at a depth that is frost free or alternatively indoors (with reservation for local ordinances and regulations).
- Use a water trap for installations where air circulation may occur in the condensation water pipe.
- The insulation must be tight against the bottom of the condensation water trough.

Recommended alternatives

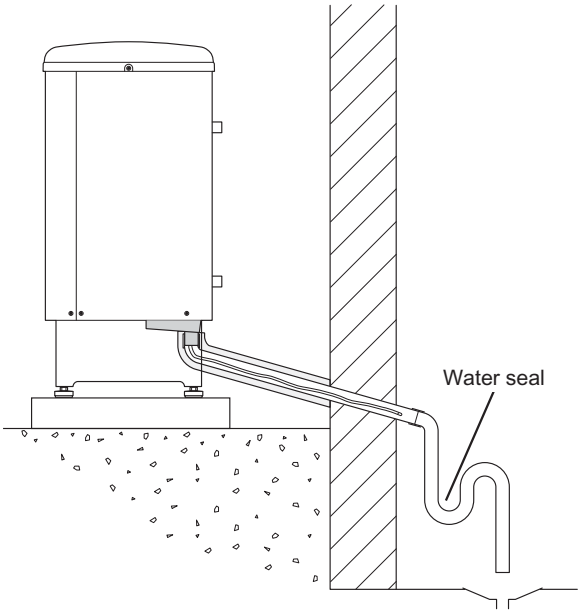
Stone caisson



If the house has a cellar the caisson must be positioned so that it does not affect the house. Otherwise the caisson can be positioned directly under the heat pump.

The outlet of the condensation water pipe must be at frost free depth.

Drain indoors

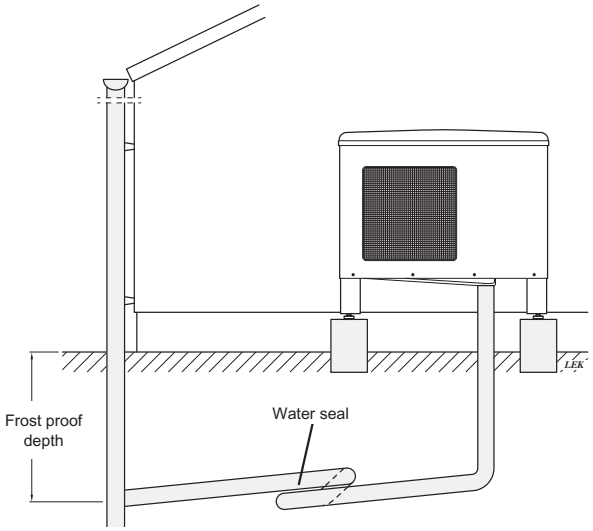


The condensation water can be routed to a drain indoors (with reservations for local rules and regulations).

Route the pipe downward from F2026.

The condensation water pipe must have a water trap to prevent air circulation in the pipe.

Gutter drainage



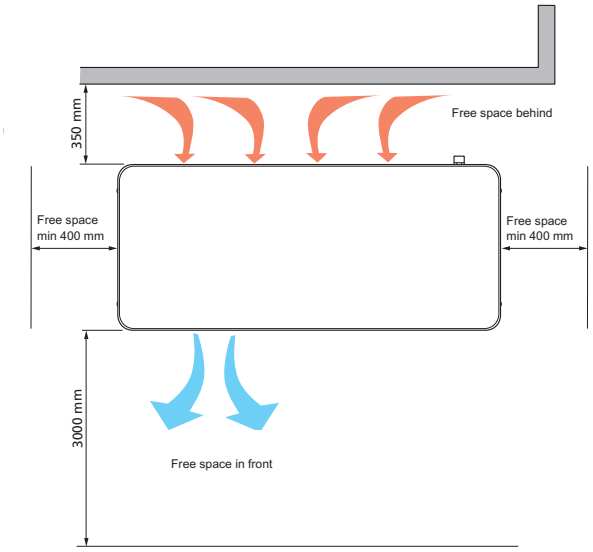
The outlet of the condensation water pipe must be at frost free depth.

Route the pipe downward from F2026.

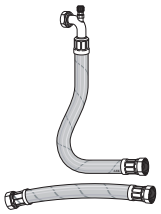
The condensation water pipe must have a water trap to prevent air circulation in the pipe.

Installation area

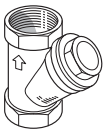
The distance between F2026 and the house wall must be at least 350 mm. Clearance in front of F2026 should be at least one metre.



Supplied components

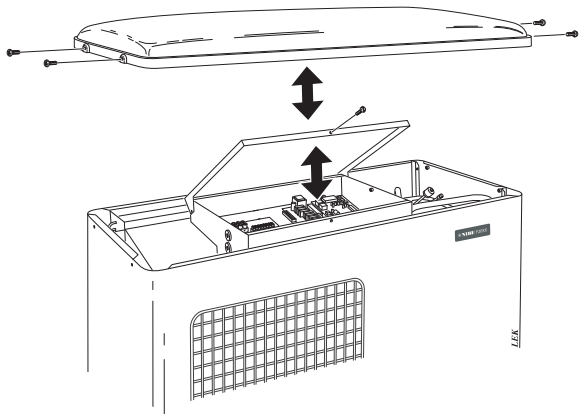


2 flexible hoses (R25) with 4 seals



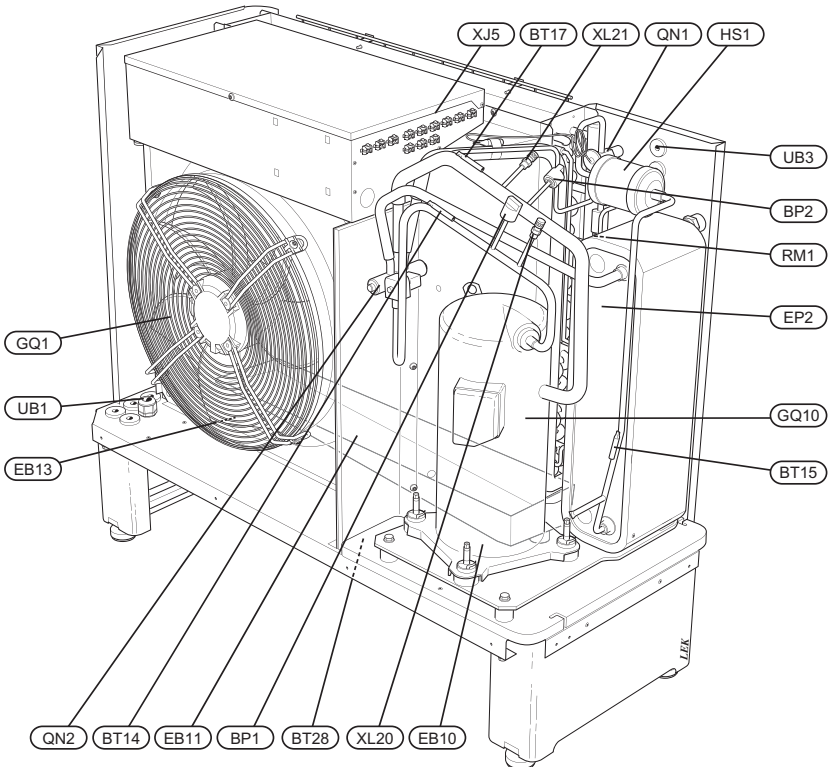
Particle filterR25

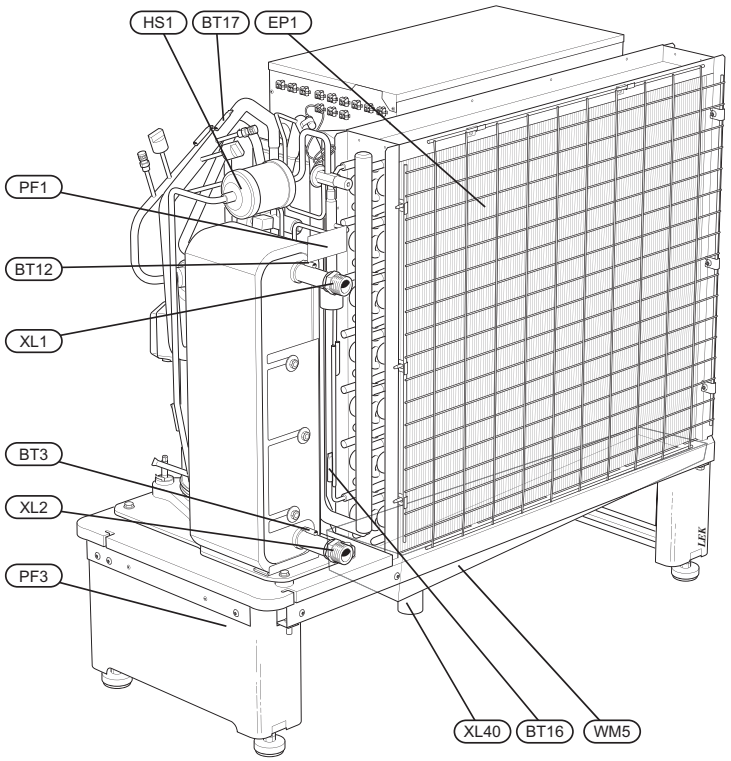
Removing the covers



3 The heat pump design

General





Pipe connections

XL 1 Connection, heating medium out of F2026, G1 (Ø28 mm)
XL 2 Connection, heating medium in to F2026, G1 (Ø28 mm)
XL 20 Service connection, high pressure
XL 21 Service connection, low pressure
XL 40 Connection, drip tray drain (Ø40 mm)

Sensors etc.

BP 1 High pressure pressostat
BP 2 Low pressure pressostat
BT 3 Temperature sensor, return
BT 12 Temperature sensor, condenser supply line
BT 14 Temperature sensor, hot gas
BT 15 Temperature sensor, fluid pipe
BT 16 Temperature sensor, evaporator
BT 17 Temperature sensor, suction gas
BT 28 Temperature sensor, ambient

Electrical components

EB 10 Compressor heater
EB 11 Condensation water trough heater
EB 13 Collar heater
GQ 1 Fan

Cooling components

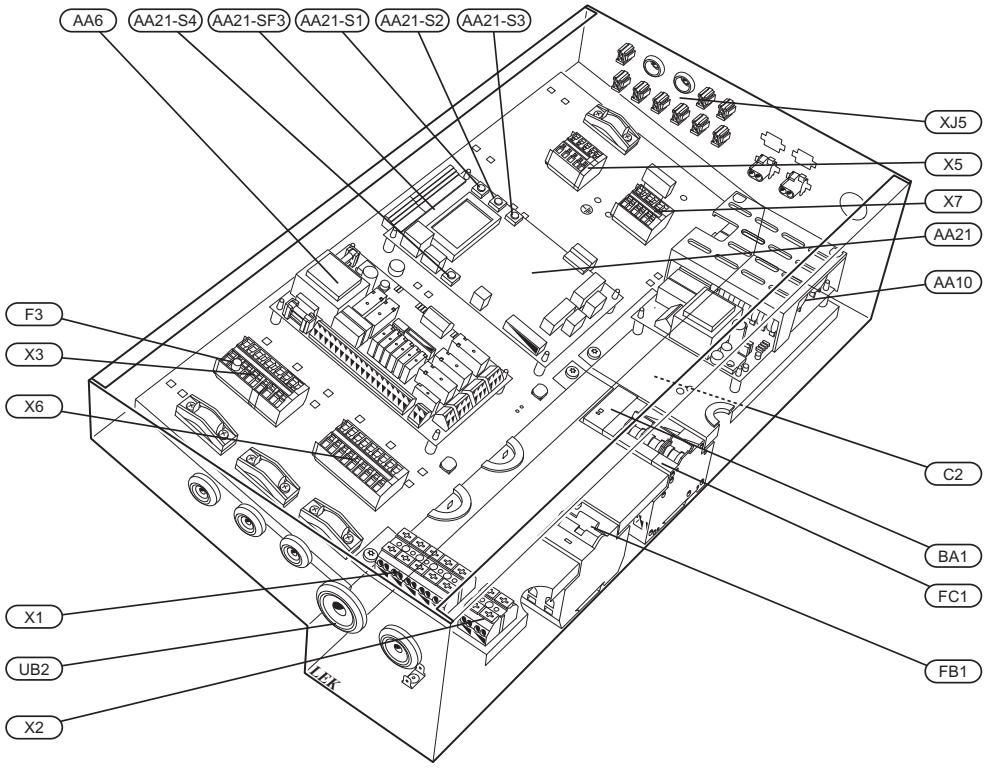
EP 1 Evaporator
EP 2 Condenser
GQ 10 Compressor
HS 1 Drying filter
QN 1 Expansion valve
QN 2 4-way valve
RM 1 Non-return valve

Miscellaneous

PF 1 Type plate
PF 3 Serial number
UB 1 Cable gland, incoming supply
UB 3 Cable gland, sensor
WM 5 Condensation water trough
XJ 5 Connections sensors

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

Electrical cabinets



Electrical components

AA 6 Relay card with power supply unit
AA 10 Soft-starter
AA 21 Control card with display
- S 1 Plus button
- S 2 Minus button
- S 3 Enter button
- S 4 Reset button
- SF 3 Display contrast

BA 1 Phase sequence monitor (3-phase)
C 2 Operating condenser, fan
F 3 Fuse for external heating cable (250 mA), max 45 W.
FB 1 Automatic protection (10 A/30 mA)
FC 1 Motor fuse
X 1 Terminal block, incoming supply
X 2 Terminal block, external control voltage
X 3 Terminal block, charge pump, external heating cable
X 5 Terminal block, thermostat, communication, blocking compressor
X 6 Terminal block, additional heat, downtime, common alarm
X 7 Terminal block, 4-way valve

Miscellaneous

UB 2 Cable gland, incoming supply
XJ 5 Connections sensors

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.

F2026 can only operate up to a return temperature of about 50 °C and an outgoing temperature of about 58 °C from the heat pump.

F2026 is not equipped with external shut off valves on the water side; these must be installed to facilitate any future servicing. The return temperature is limited by the return line sensor.

Water volumes

When docking with F2026 a minimum available system volume of at least 20 litres per kW output on the heat pump is recommended.

NOTE

The pipe work must be flushed before the heat pump is connected, so that any contaminants do not damage the components.

Pipe coupling heating medium circuit

- F2026 can be connected directly to the heating system see the section "Docking" or according to one of the system solutions that can be downloaded from the website.
- The heat pump must be vented by the upper connection (XL1, HM-out) using the venting nipple on the enclosed flexible hose.
- Install the supplied particle filter (HQ1) before the inlet, i.e. the lower connection (XL2, HM-in) on F2026.
- All outdoor pipes must be thermally insulated with at least 19mm thick pipe insulation.
- Install shutoff (QM40) and drain (QM1) valves so that F2026 can be emptied in the event of prolonged power failures.
- The supplied flexible hoses act as vibration dampers. The flexible hoses are fitted so a slight bend is created, thus acting as vibration damping.

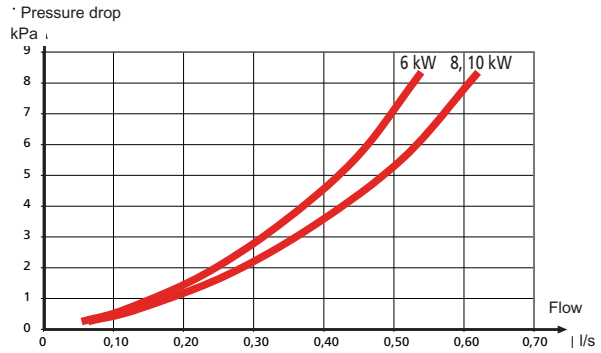
NOTE

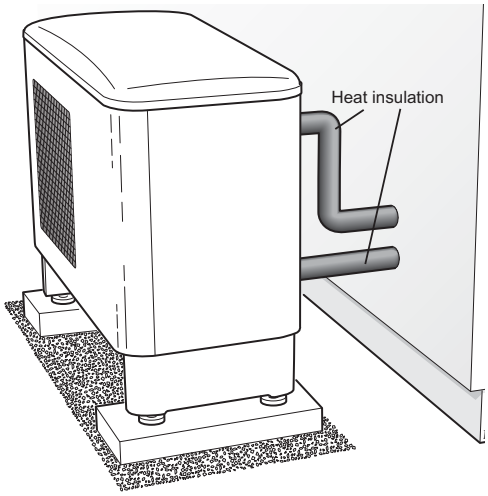
The charge pump must be operational, even if F2026 is not running, to prevent damage due to freezing.

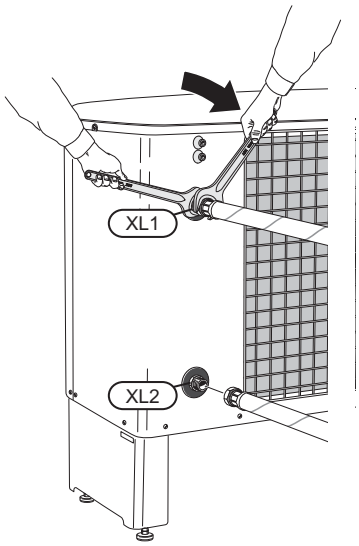
The charge pump can also be controlled directly from F2026, terminal (X3), which takes the outdoor temperature into consideration. Alternatively, the heat pump is connected to an intermediate circuit with a heat exchanger, pump and water with anti-freeze (does not apply to docking with VVM 300/VVM 500).

Pressure drop, heating medium side

F2026 -6, 8, 10







Docking alternatives

F2026 can be installed in several different ways. The requisite safety equipment must be installed in accordance with current regulations for all docked options.

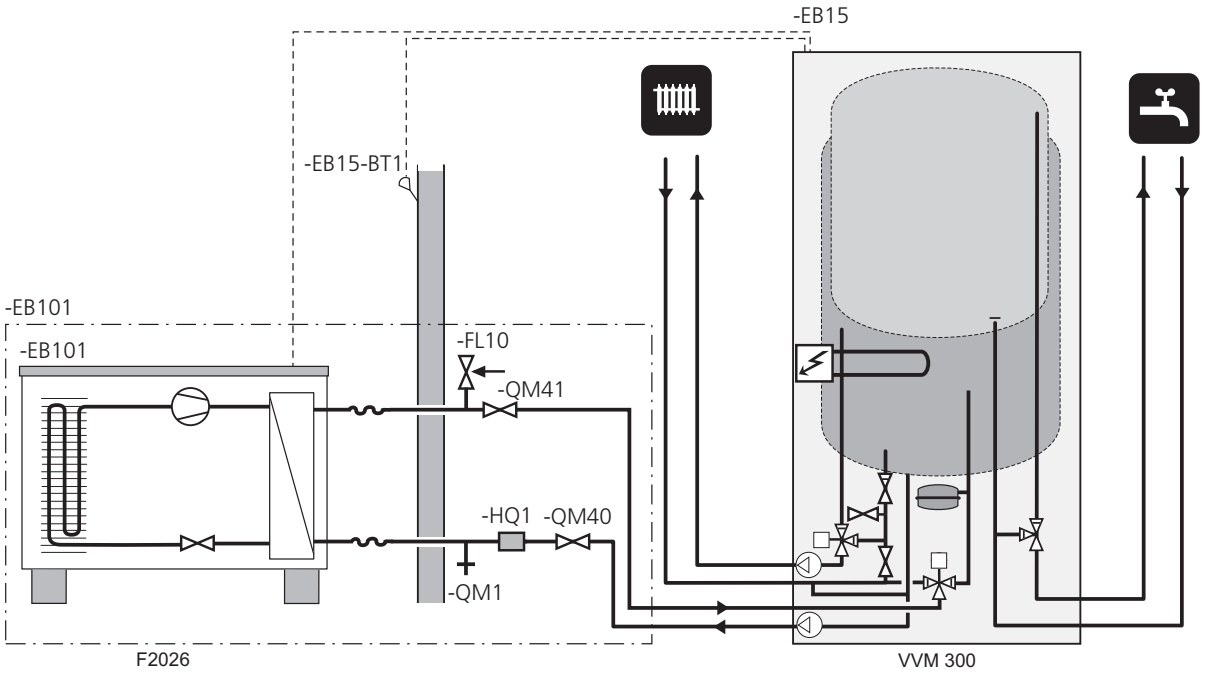
When docking with F2026 a minimum available system volume of at least 20 litres per kW output on the heat pump is recommended.

Explanation

AA25	**Control unit (Indoor module) (SMO 05, SMO10, Control centre)**
AA4	Display unit
BT1	Outside sensor
BT2	Temperature sensor, heating medium, flow
BT3	Temperature sensor, heating medium, return
BT6	Temperature sensor, hot water, charging
BT25	Supply line sensor, external
BT50	Room sensor
QN10	Reversing valve, Hot water/Heating medium
QN11	Mixing valve, addition
CL11	**Pool kit**
BT51	Temperature sensor, pool
EP5	Exchanger, pool
GP9	Pool, pump
HQ3	Particle filter
QN19	Three way valve, pool
RN10	Trim valve
EB15	**Indoor module (EVP 270, VVM 300, VVM 500)**
AA25	Control box
BT1	Outside sensor
BT2	Temperature sensor, heating medium, flow
BT6	Temperature sensor, hot water, charging
BT24	Docking sensor
BT52	Boiler sensor
CM1	Expansion vessel, closed, heating medium
EB20	Immersion heater
FL1	Safety valve, water heater
FL2	Safety valve, boiler
FL10	Safety valve, heat pump
FQ1	Mixer valve, hot water
GP10	Circulation pump, heating
KA2	Auxiliary relay
QM4	Drain valve
QN11	Mixing valve, addition
EB100	**Heat pump (F2026)**
BT31	Room thermostat (RT 10)
BT34	Thermostat, charging
FL10	Safety valve, heat pump
GP12	Charge pump
HQ1	Particle filter
QM1	Drain valve, heating medium
QM40	Shut-off valve
RN10	Trim valve
RM1	Non-return valve
EB101	**Heat pump (F2026)**
FL10	Safety valve, heat pump
GP12	Charge pump
HQ1	Particle filter
QM1	Drain valve, heating medium
QM40	Shut-off valve
QM41	Shut-off valve
RM1	Non-return valve
RN10	Trim valve
EB102	**Heat pump (F2026)**
FL10	Safety valve, heat pump
GP12	Charge pump
HQ1	Particle filter
QM1	Drain valve, heating medium
QM40	Shut-off valve
RM1	Non-return valve
RN10	Trim valve
EM1	**Oil, gas, pellets or wood boiler**
BT52	Temperature sensor, boiler
CM1	Expansion vessel, closed, heating medium
FL2	Safety valve, heating medium
KA1	Auxiliary relay
EP21	**Climate system 2**
BT2	Temperature sensor, heating medium, flow
BT3	Temperature sensors, heating medium return
GP10	Circulation pump, heating medium
QN25	Shunt valve
Miscellaneous	
AA25-KA10	Auxiliary relay/Contactor
AA25-KA11	Auxiliary relay/Contactor
BT1	Outside sensor
BT31	Room thermostat (RT 10)
CM1	Expansion vessel closed, heating medium
CP1	Buffer vessel (UKV)
CP10	Accumulator tank with hot water heating (VPA/VPAS/VPB)
CP10-EB20	Immersion heater
CP11	Buffer vessel (UKV)
EB1	Electric heater / Electric boiler
EB1-BP5	Pressure gauge
EB1-QM40	Shut-off valve
EB1-QM60	Venting valve
EB1-QN25	Shunt valve
EB1-RM1	Non-return valve
FL1	Safety valve, hot water
FL2	Safety valve, heating medium
FL11	Safety valve, heat pump
FQ1	Mixer valve, hot water

GP10	Circulation pump, heating medium
KA3	Auxiliary relay
QM31	Shut-off valve, heating medium, supply
QM32	Shut off valve, heating medium, return
QN10	Reversing valve, hot water/heating medium
QN26	Overflow valve
RM3	Non-return valve
RN10	Trim valve
RN11	Trim valve

F2026 docked with VVM 300 (floating condensing)



NOTE

When cable routing, sensor cables and communication cables must be separated (min 20 cm) from high voltage cables to prevent interference.

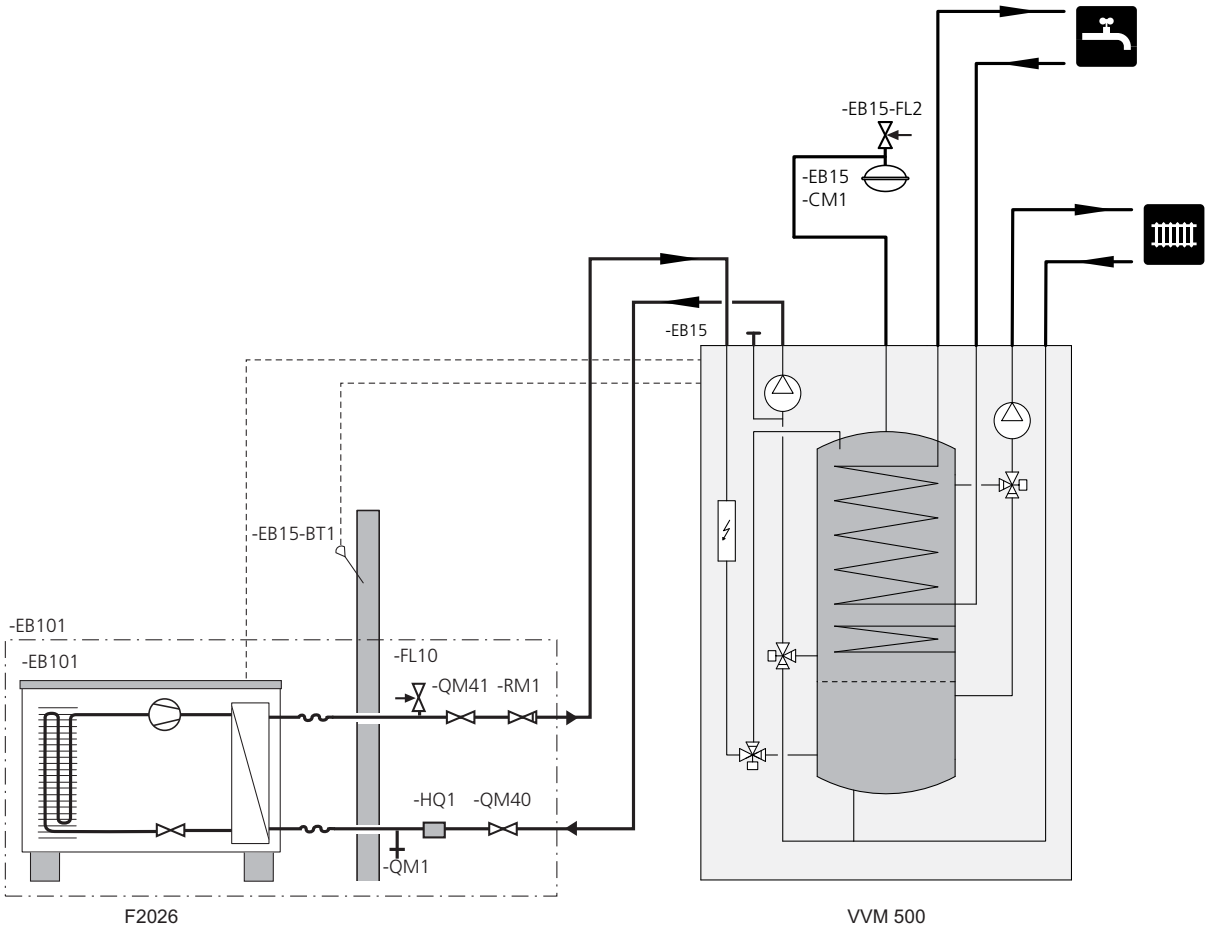
NOTE

Check that you have a VVM 300 with version 1.30 or newer. If you have an earlier model of VVM 300 the control card must be replaced in the indoor module. The modular cable is then connected directly to the outdoor module control card.

F2026 (slave) can be connected to VVM 300 (master). F2026 is then controlled by VVM 300 and works with floating condensing to the heating system and prioritises hot water charging in VVM 300.

If F2026 cannot meet the heating requirement, additional heat is shunted in from VVM 300. If the ambient temperature drops below the set stop temperature, VVM 300 engages and takes over heating.

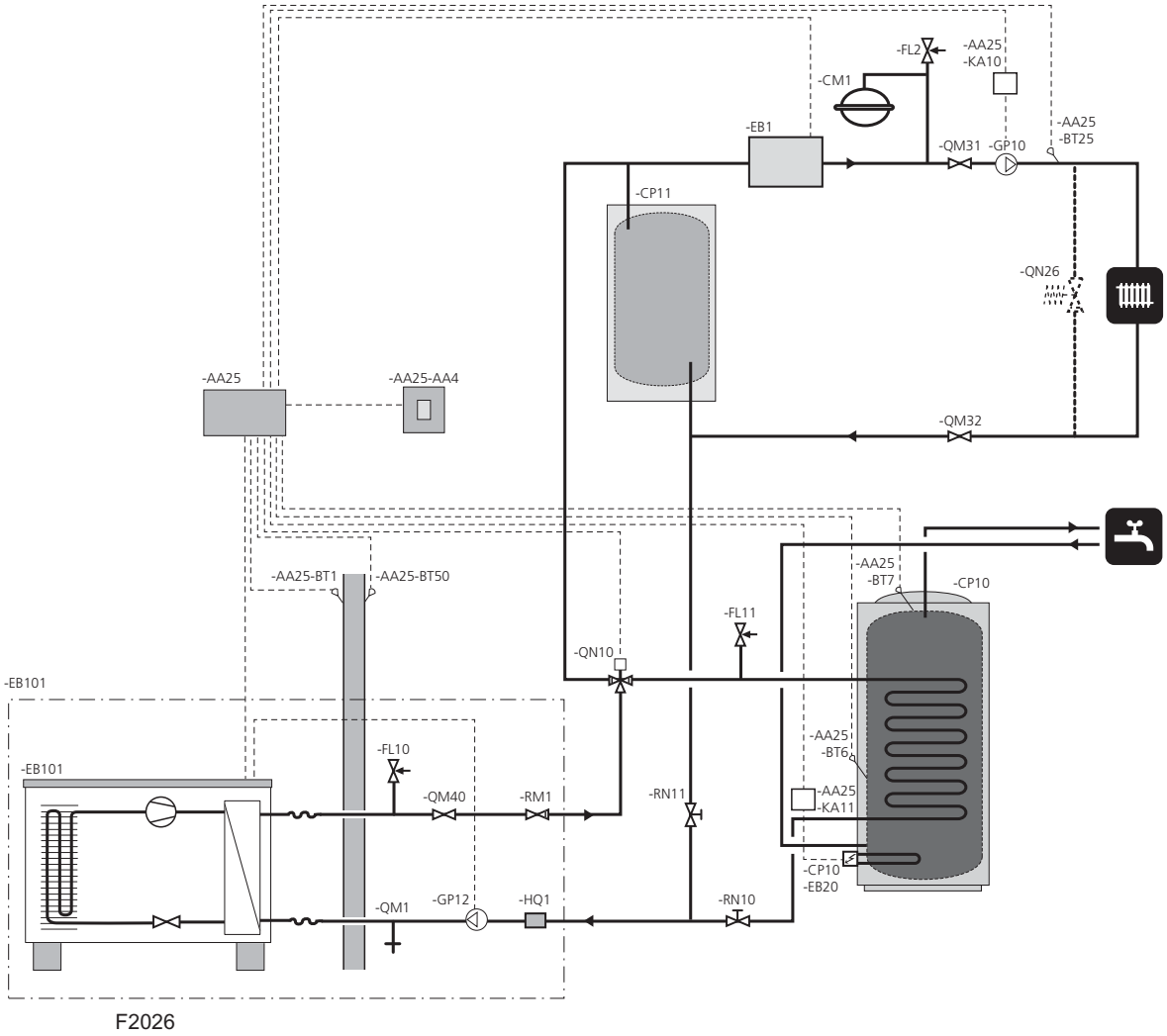
F2026 docked with VVM 500 (floating condensing)



F2026 (slave) can be connected to VVM 500 (master). F2026 is then controlled by VVM 500 and works with floating condensing to the heating system and prioritises hot water charging in VVM 500.

If F2026 cannot supply the whole heating requirement the additional heat is supplied from VVM 500. If the ambient temperature drops below the set stop temperature, VVM 500 engages and takes over heating.

F2026 docked to the electric/oil-fired/pellet boiler together with SMO 05 and water heater (floating condensing)



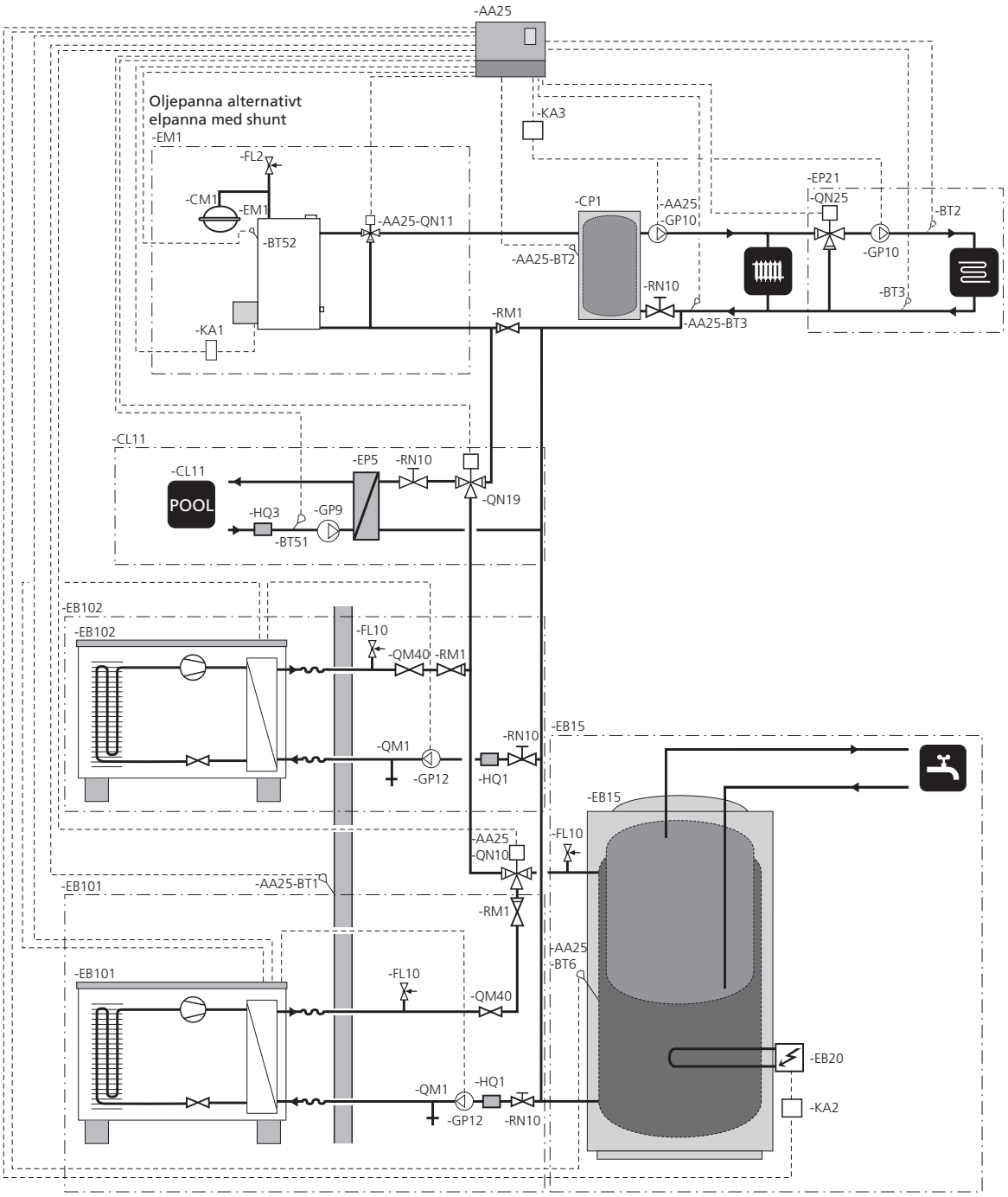
SMO 05 (master) is a simple control module that together with F2026 (slave), a hot water heater and an extra heat source create a complete installation.

F2026 works with floating condensing against the heating system and prioritises hot water charging via the three way valve.

NOTE

When cable routing, sensor cables and communication cables must be separated (min 20 cm) from high voltage cables to prevent interference.

F2026 docked to the electric/oil-fired/pellet boiler together with SMO 10 and water heater (floating condensing)



SMO 10 (master) controls one or up to nine F2026 (slaves), additional heater, circulation pumps, shunts, etc. F2026 works with floating condensing against the heating system and prioritises hot water charging via the three way valve.

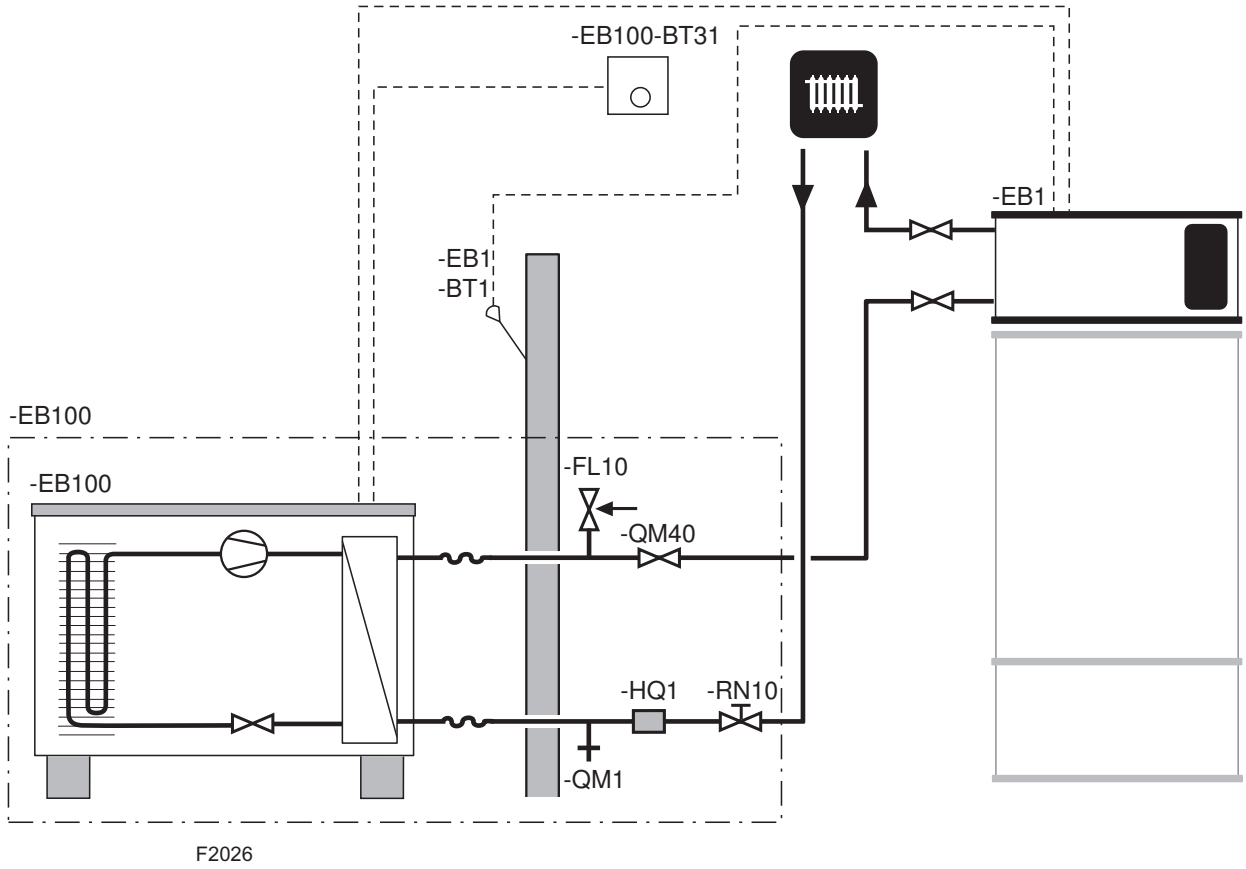
If F2026 cannot meet the heating requirement, the additional heat is started and is shunted in.

When additional heat is engaged, hot water is heated using the immersion heater in the hot water heater.

NOTE

When cable routing, sensor cables and communication cables must be separated (min 20 cm) from high voltage cables to prevent interference.

F2026 docked with EVC 13 (floating condensing)



F2026 is controlled by a room thermostat and works with floating condensing on the return from the heating system. If F2026 cannot meet the heating requirement the additional heat is shunted in using the existing control equipment from EVC 13.

Additional heat can be blocked above the set ambient temperature by means of the automatic control system in F2026. The heating medium also circulates through F2026 during the set stop temperature. Hot water production only takes place using the existing hot water heater.

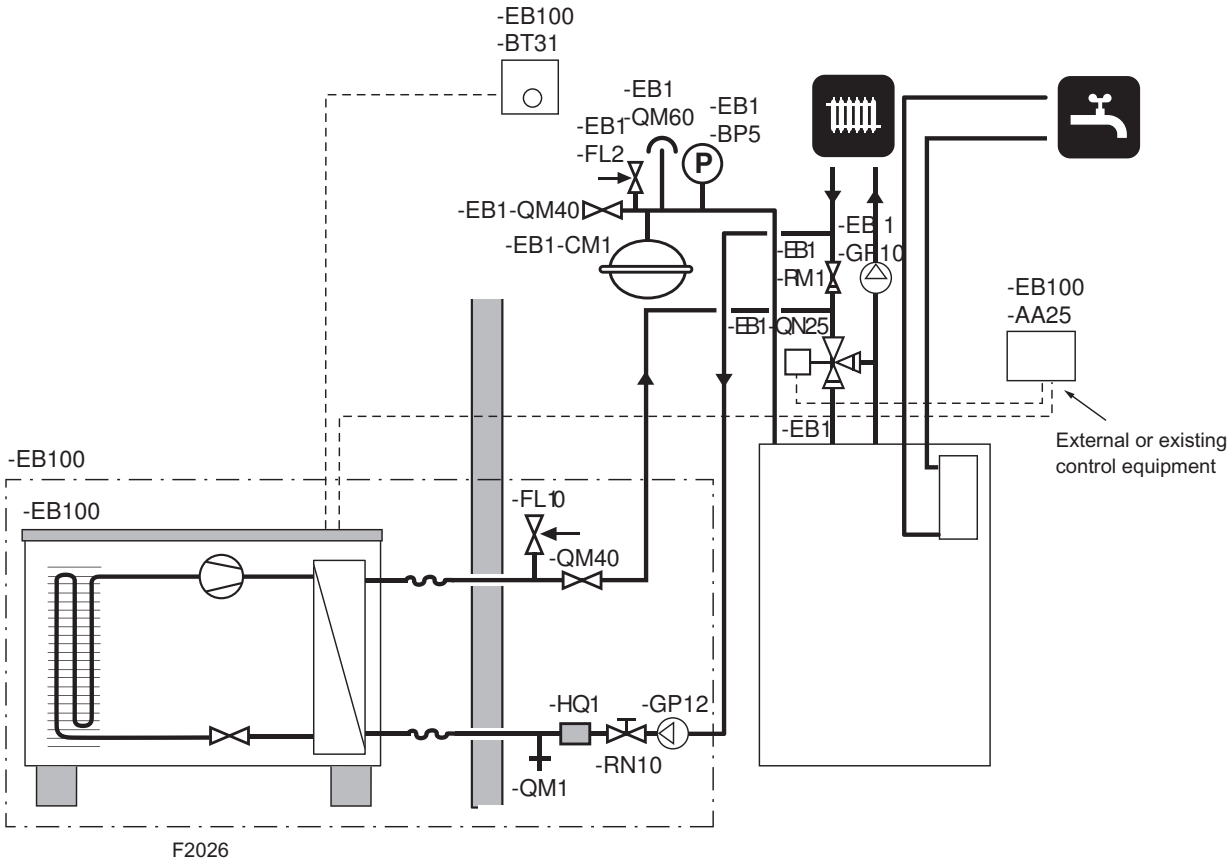
The right curve is selected in EVC 13 so that F2026 is not disturbed.

This option requires accessory RT 10.

NOTE

When cable routing, sensor cables and communication cables must be separated (min 20 cm) from high voltage cables to prevent interference.

F2026 docked to an electric/oil boiler (floating condensing)



F2026 is controlled by a room thermostat and works with floating condensing on the return from the heating system.

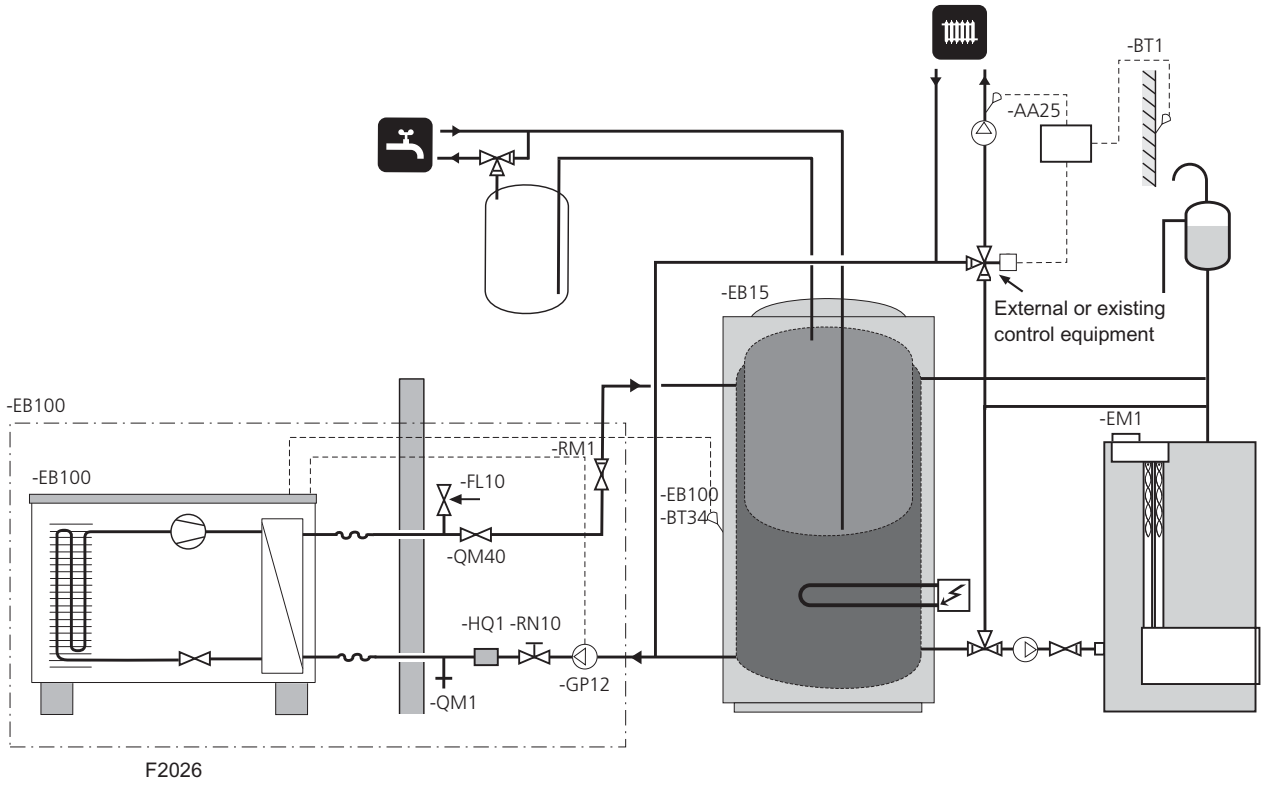
If F2026 cannot meet the heating requirement the additional heat is shunted in using the existing control equipment.

Additional heat can be blocked above the set balance temperature by means of the automatic control system in F2026. In other cases the heat pump does not collaborate with the electric/oil fired boiler in the optimum way.

Hot water production only takes place using the existing electric/oil boiler.

This option requires accessory RT 10.

F2026 docked with wood fired boiler and hot water heater (fixed condensing)



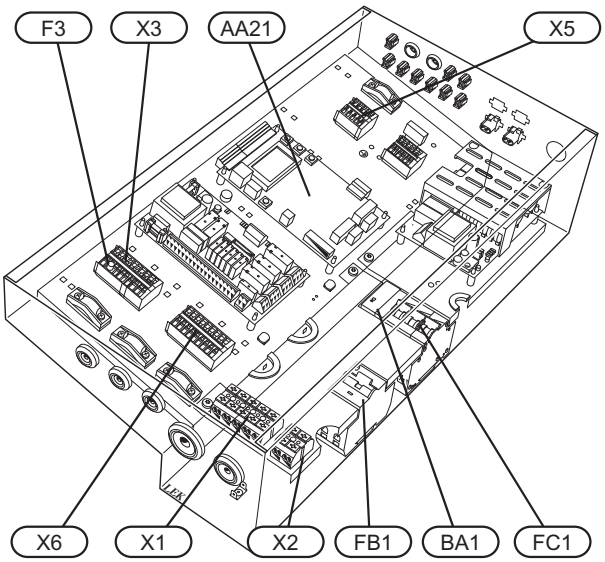
F2026 charges the water heater/accumulator tank (EB15). When the firewood boiler is in use, the heat pump and immersion heater are disconnected when the temperature rises on the thermostat (BT34) and start again when the temperature drops. Too high temperature in the tank can generate alarm in the outdoor module and should be restricted to 60 °C.

Self-circulation through the heat pump is prevented by the check valve (RM1).

5 Electrical connections

General

- A heat pump must not be connected without the permission of the electricity supplier and must be connected under the supervision of a qualified electrician.
- If a miniature circuit breaker is used this should have motor characteristic "C" (compressor operation). For MCB size see "Technical Specifications".
- F2026 does not include an omnipolar circuit breaker on the incoming power supply. The heat pump's supply cable must be connected to a circuit-breaker with at least a 3 mm breaking gap. When the building is equipped with an earth-fault breaker the heat pump should be equipped with a separate one. Incoming supply must be 400 V 3NAC 50Hz via distribution boards with fuses.
- If an insulation test is to be carried out in the building, disconnect the heat pump.
- Connect control signal cable for thermostat to terminal (X5). Cable type: unscreened LiYY, screened LiYCY. Cable area, at least 0.22with cable lengths less than 50m.
- Alternatively the relevant screened signal cable is connected from terminal block (X5) to SMO 05/SMO 10/NIBE indoor module.
- The routing of cables for heavy current should be made out through the cable glands on the heat pump's left-hand side, seen from the front (UB1) and signal cables from the rear (UB3).
- Charge pump for F2026 can be connected to separate supply or to terminal block (X3).
  NOTE! If F2026 is not powered and the charge pump is connected to the terminal block (X3) there is a risk of freezing
- A common alarm can be connected to terminal (X6).



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.

NOTE

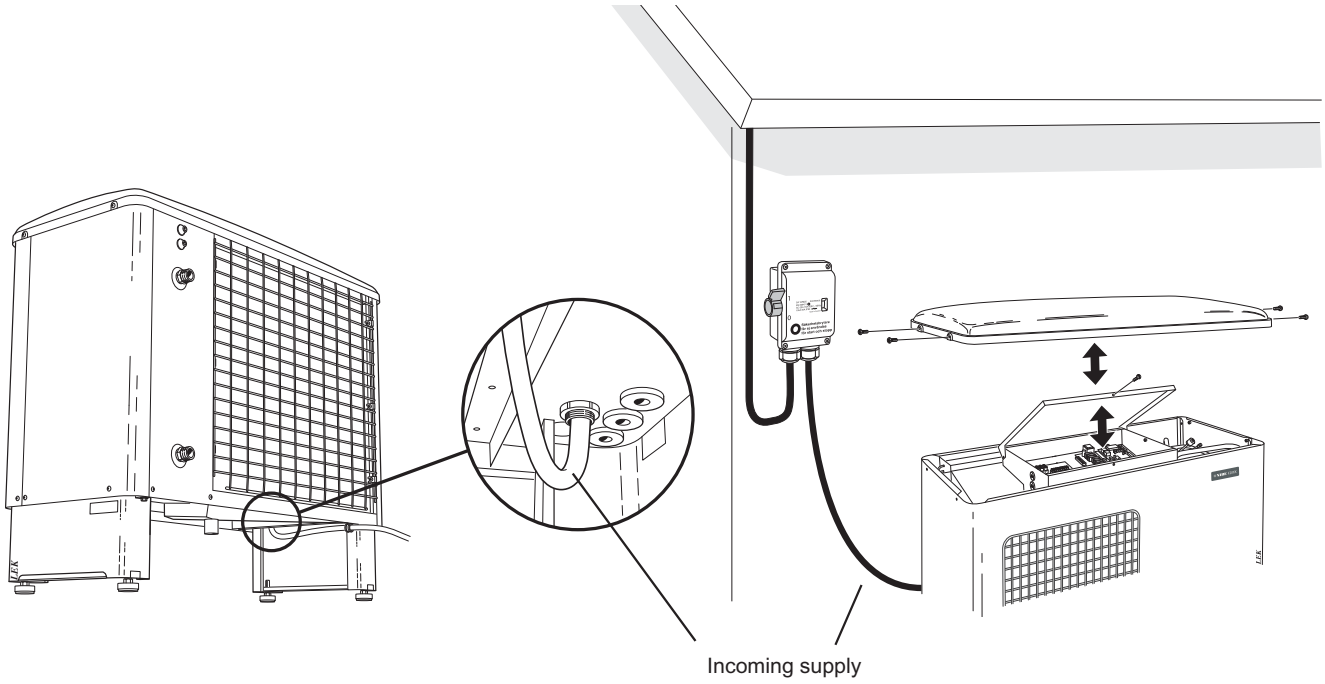
The external control must be taken into consideration when connecting.

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 cables when cable routing.

Power connection



Incoming supply cable is supplied and factory connected to the terminal block -X1. Approx. 1.8 m cable is accessible outside the heat pump.

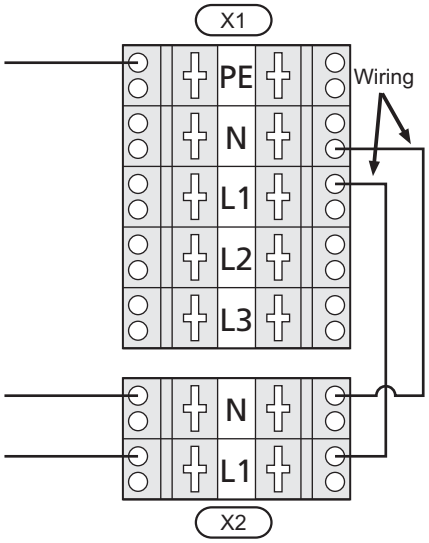
Connecting external control voltage

NOTE

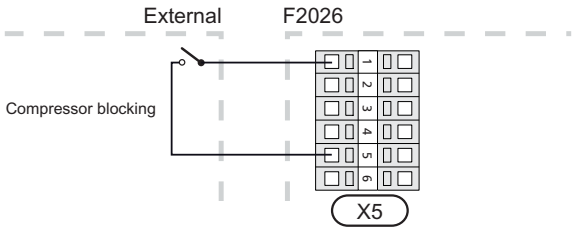
Mark up any electrical cabinets with warnings for external voltage.

When connecting external control voltage with separate earth-fault breaker disconnect the cables between terminal blockX1:N and X2:N and between terminal block X1:L1 and X2:L1 (as illustrated).

Operating voltage (1x230V+N+PE) is connected to X2:N and X2:L1 (as illustrated).



At connection of external control voltage you must connect a switch (for tariff control) to connection X5:1 and X5:5 (compressor blocking) to prevent MP alarm.



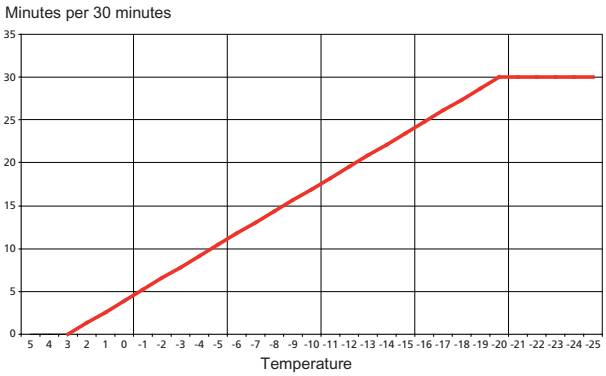
Charge pump

To let F2026 control the charge pump (GP12), connect it to the terminal block X3:4(N), 5(L) and 7(PE).. Pump activity is dependent on the status of F2026, heating/hot water requirement and the ambient temperature. Pump exercising is handled by F2026.

With potential free connection of the circulation pump you replace the bracket with separate voltage supply for X3:6(L).

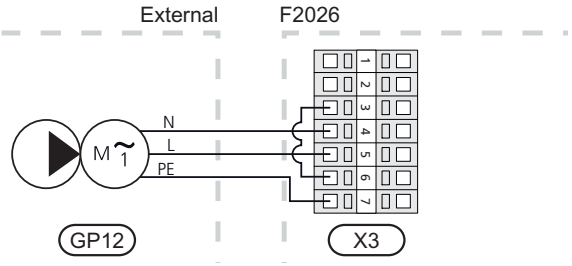
Anti-freeze function

At temperatures below +2 °C, the charge pump runs periodically, and at temperatures below -20 °C it runs continually. This function applies on the condition that F2026 is powered.



NOTE

There is a risk of freezing when the charge pump is connected to the terminal block - X3 and F2026 is not powered.



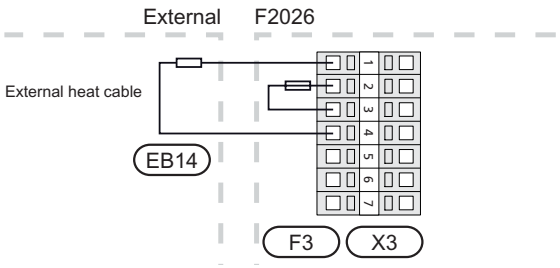
External heating cable (KVR 10)

F2026 is equipped with a terminal block for an external heating cable (EB14, not supplied). The connection is fused with 250 mA (F3, 15 W/m). If another cable is to be used the fuse must be replaced by one of a suitable size (see table).

Length (m)	Total output (W)	Fuse (F3)	NIBE Part no.
1	15	T100mA/250V	718085
3	45	T250mA/250V	518900*
6	90	T500mA/250V	718086

* Factory installed.

External heating cable (EB14) is connected to terminal block X3:1 and 4 as illustrated:



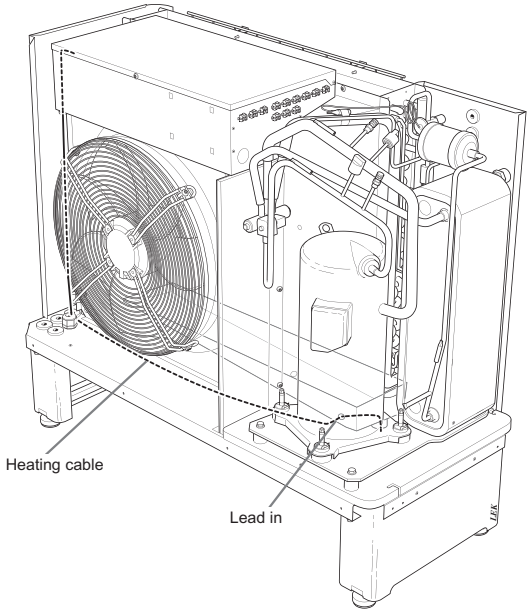
NOTE

The pipe must be able to withstand the heat from the heating cable.

To ensure this function the accessory KVR 10 should be used.

Cable routing

The following image displays the recommended cable routing from the electrical cabinet to the condensation water trough in F2026. The transfer from electrical cable to heating cable must occur after the lead-in to the condensation water trough. The distance between the electrical cabinet and the lead-in to the condensation water trough is approx.1930 mm.



Ambient temperature sensor

An ambient temperature sensor (BT28) is located on the underside of F2026.

Optional connections

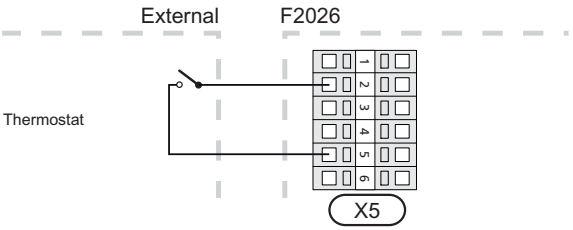
NOTE

The following pages about thermostats, additional heat, common alarms and downtime, do not apply when F2026 is controlled by SMO 05/SMO 10 or NIBE indoor module.

Thermostat control

You can use a basic thermostat or a closing potential-free contact to switch the compressor on and off. This thermostat should be of the breaking type (NC) when the set temperature has been reached. The contactor should be potential free.

Connect the thermostat to terminal block X5:2 and 5 as illustrated below.



Additional heat / Downtime

F2026 is equipped with a potential free contactor intended for additional heat. Max 250V 2A.

The setting of the ambient temperature (balance temperature) when the additional relay is activated is made on channel A5, see the section "Control - Channel description".

External additional heat is connected via the additional relay terminal block X6:1 to 3.

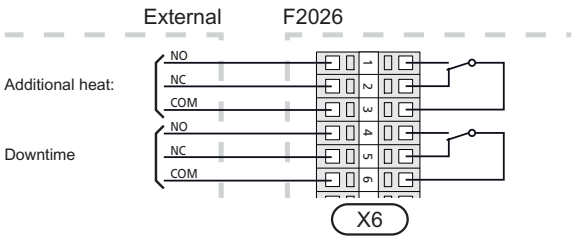
Conditions for connecting additional heat:

- The ambient temperature should be lower than the set balance temperature (channel A5).
- The compressor must have been operating for the minimum period that can be set in channel A6. Defrosting is included in this time.

If the ambient temperature drops down to a level below the set value, stop temperature (downtime), in channel A7 compressor operations are blocked and all heating must take place using the external additional heat via the downtime relay, terminal block X6:4 (6). This function is also activated when F2026 is deenergized.

If the ambient temperature exceeds 35 °C compressor operation is blocked and the downtime relay is activated.

The connection to the additional relay is made as illustrated below.



Max load across the relay contactors is 250V 2A.

During operations without the need of the additional heat or downtime the relay contactors are closed between NO and COM.

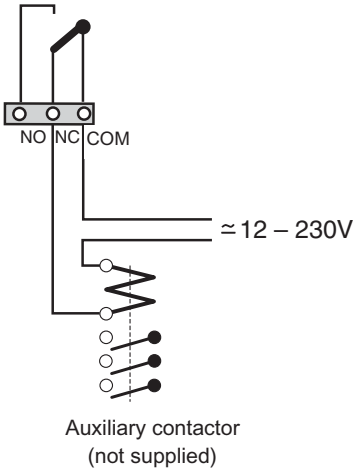
Additional heat and downtime are acquired between NC and COM.

The contactors are drawn in the deenergized state.

Additional and downtime relays are activated during normal operating conditions for F2026. Both relays are deactivated in the event of operating disruptions.

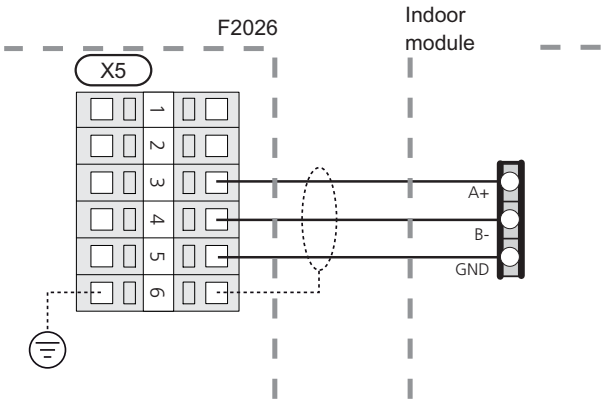
Example of addition connection

Basic electrical circuit diagram for connection of auxiliary relays for additional heat and downtime.



Communication

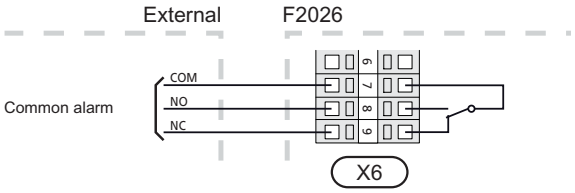
F2026 can communicate with NIBE indoor modules, by connecting the indoor module to the terminal block X5:3, X5:4, X5:5 as illustrated:



External indication of main alarm

F2026 is equipped with a contact for external indication of common alarms. The function becomes active with all types of existing alarms. Max load on the relay contact is250V 2A.

The connection for external indication of common alarms is made to terminal block X6:7 to 9 as illustrated below:



Connecting accessories

Instructions for connecting accessories are in the installation instructions provided for the respective accessory. See page 41 for the list of the accessories that can be used with F2026.

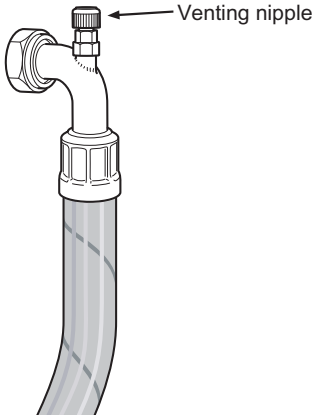
6 Commissioning and adjusting

Preparations

- Before commissioning, check that the heating circuit is filled and well vented.
- Check the pipe system for leaks.

Filling and venting the heating medium system

1. The heating medium system is filled with water to the required pressure.
2. Vent the system using the venting nipple on the enclosed flexible hose and possibly the circulation pump.



Balance temperature

The balance temperature is the outdoor temperature when the heat pump's stated output is equal to the building's output requirement. This means that the heat pump covers the whole building's output requirement down to this temperature.

Set the balance temperature, additional heat, in channel A5.

Stop temperature

When the stop temperature (channel A7) is set between -7 and -20 C the flow temperature is limited linearly from -7 C / 58 °C to -20 °C / 50 °C (see diagram on page 45).

If the ambient temperature is below the set value for stop temperature heating must occur using the additional heat.

Soft-starter

F2026 is equipped with soft-start (AA10) that limits the inrush current for the compressor.

Compressor heater

F2026 is equipped with a compressor heater that heats the compressor before start-up and when the compressor is cold.

NOTE

The compressor heater must have been connected for 6 – 8 hours before the first start, see the section "Start-up and inspection".

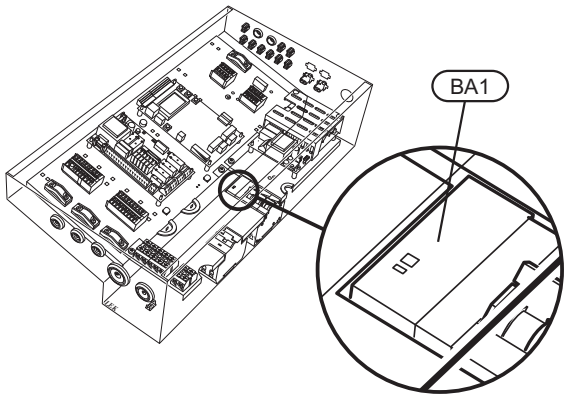
Collar heater

F2026 is equipped with a collar heater that heats the fan collar when necessary (not activated on delivery).

NOTE

The collar heater is only required in certain cases where the ambient temperature is too low for a long period.

Phase sequence control



The phase sequence sensor (BA1) starts as soon as the power supply is connected to the heat pump. Check the phase sequence as shown below.

- Red LED is lit at correct phase sequence
- If there is a fault in the phase sequence, the heat pump receives an alarm 07 in channel S1 and the LED flashes.

NOTE

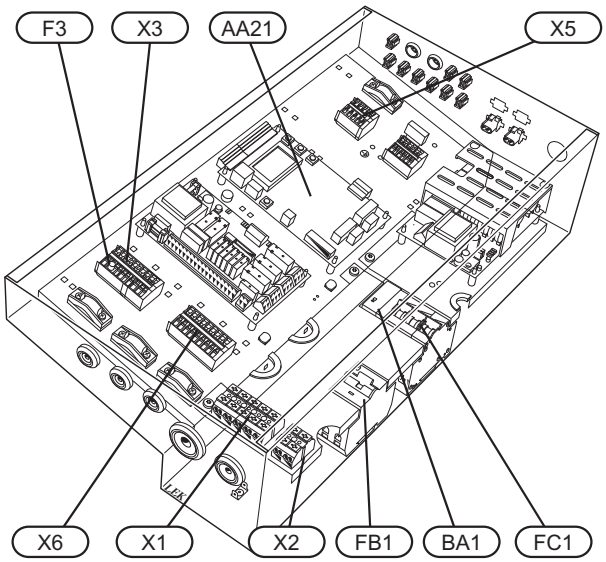
Check the phase sequence when starting!

Start-up and inspection

1. Communication cable or thermostat, terminal block (X5) must not be connected.
2. Turn the isolator switch on.
3. Ensure that the F2026 is connected to the power source.
4. Check that the automatic protection (FB1) is on.
5. Check that the motor circuit-breaker (FC1) is on.
6. Check that the LED on phase sequence sensor (BA1) lights red.
7. The compressor heater (EB10) must have been operational
for at least 6 – 8 hours before the compressor start can be initiated. This is done by switching on the control voltage and disconnecting the communications
cable or thermostat.
8. The display on the control card (AA21) shows C0/CC F0 H1/H3 depending on the ambient temperature. During this period the compressor is heated to increase the service life.
9. The communication cable or external thermostat is connected after 6 – 8 hours. See section Thermostat control" electrical connection chapter.
10. Restart any NIBE SMO 05/SMO 10 or NIBE indoor module. See information in relevant manual on
11. Once the connection is made, the compressor starts after approx. 20 minutes if needed.
12. Adjust the charge flow according to the diagram, see the section "Adjustment, charge flow"
13. Adjust the menu settings if necessary.
14. Fill in the commissioning report in the user manual.
15. Remove the protective film from the cover on F2026.

NOTE

The external control must be taken into consideration when connecting.



Readjusting, heating medium side

Air is initially released from the hot water and venting may be necessary. If bubbling sounds can be heard from the heat pump, the circulation pump and radiators the entire system will require further venting. When the system is stable (correct pressure and all air eliminated) the automatic heating control system can be set as required.

Adjustment, charge flow

Adjusting the temperature difference (ΔT) between the flow temperature and the return temperature is best done during hot water charging or at high load.

This is most easily done using the temperatures measured in channel T2 (supply temperature) minus channel T3 (return temperature). This temperature difference (ΔT) is adjusted using the circulation pump and control valve. Adjustment is performed with stable operation about 5 minutes after start, or about 5 minutes after defrosting at cold ambient temperatures.

The temperature difference must be within the grey area in accordance with the diagram below (+1- 2 K). If the ambient temperature is above 28 °C the charge flow should be in the lower region.

The diagrams show the heat pump with a high fan speed, at low fan speeds ΔT will be 0.5 to 1 degrees lower (does not apply to F2026-6 kW, which only has one fan speed).

1 and 4 flow temperature. 35 °C

2 and 5 flow temperature. 45 °C

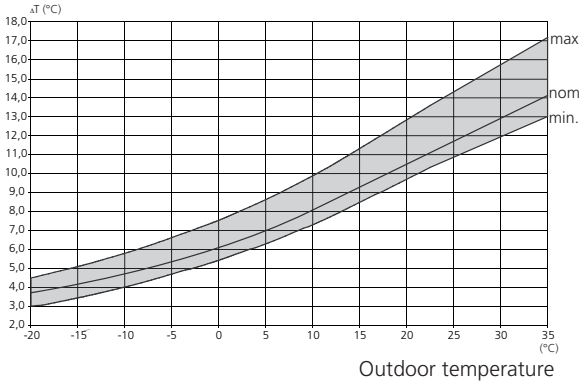
3 and 6 flow temperature. 55 °C

Quoted outputs refer to compressor, fan and control at nominal heating medium flow. During operation that requires defrosting the relationship between input and output is reduced by about 10%.

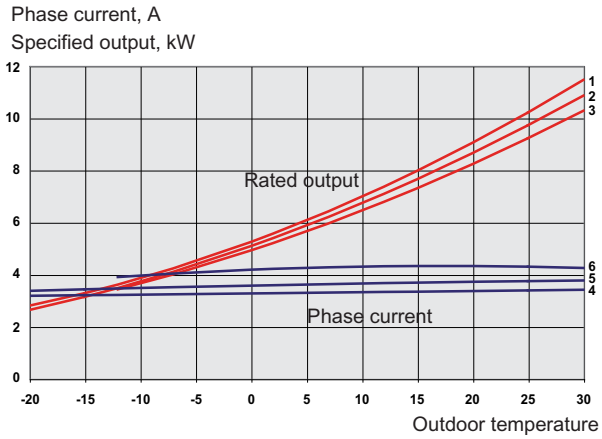
F2026

Charge flow

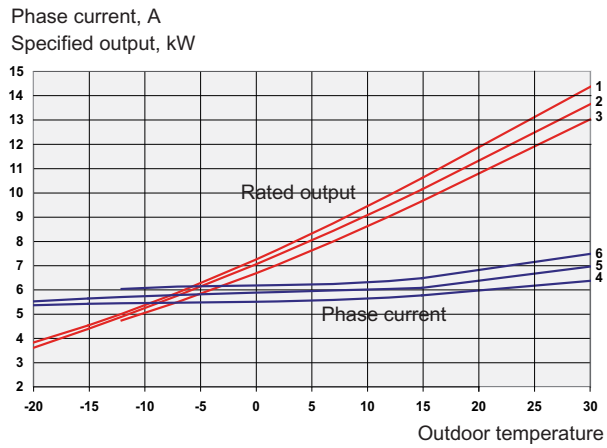
Adjustment of charge flow



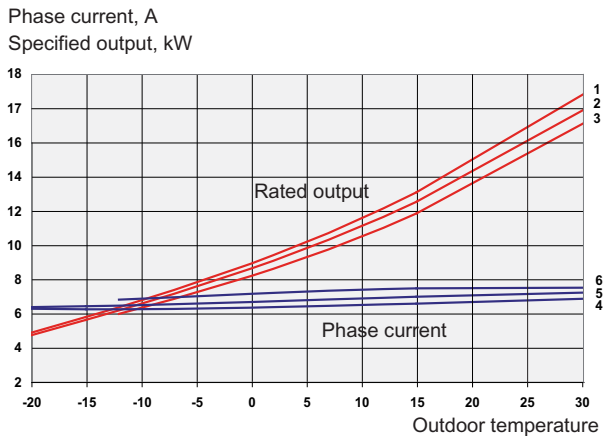
F2026-6



F2026-8



F2026-10



7 Control - Introduction

General

F2026 is equipped with an internal electronic control that handles those functions that are necessary for operation of the heat pump, for example defrosting, stop at max/min temperature, connection of the compressor heater as well as enabling the heater for the condensation watering trough and monitoring of pressure switches.

The temperatures, number of starts and the operating time can also be read.

The integrated controller is set during installation and can be used during a service.

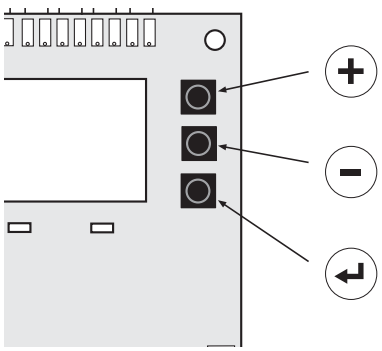
Under normal operating conditions the home owner does not need to have access to the controller.

F2026 has an integrated return line sensor that limits the return temperature.

F2026 can also be switched on/off via signals from other control equipment or a thermostat. If F2026 is controlled from the indoor module, VVM eller SMO (accessory), the control is described in the instructions supplied.

F2026 communicates with the indoor module which means that settings and measurement values from F2026 can be adjusted and read off in the indoor module.

Navigation



Plus button

The plus button (S1) is used to browse through the channel system (forwards) or raise the value of the selected parameter.

See the section "Control" – "Channel description"

Minus button

The minus button (S2) is used to browse through the channel system (backwards) or lower the value of the selected parameter.

See the section "Control" – "Channel description"

Enter button

The Enter button (S3) is used to activate and confirm value changes.

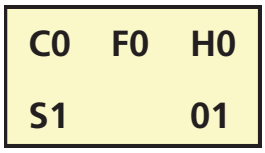
See the section "Control" – "Channel description"

To modify a value, first press the Enter button to activate modification mode, the value flashes. Adjust the value as required using the Plus button or Minus button. Holding the Plus button or Minus button in for about 3 seconds speeds up the change in value. Then confirm using the Enter button. The value will stop flashing.

The instructions are divided into three parts: status, temperatures and adjustable values.

Quick movement between the different types is carried out by pressing the enter button when STATUS, TEMP. or ADJUST. are displayed.

Display explanation



Compressor: C

Shows the present compressor status.

C0 Compressor off, circulation pump off

C Flashes when the compressor wants to start but is prevented by the time conditions or high return temperature.

C1 Compressor on, circulation pump on

CC Compressor off, circulation pump on

CD Defrosting in progress

Fan: F

The fan has two speeds, high or low (does not apply to F2026-6 kW that only have one fan speed). The fan is controlled by the ambient temperature. The lower speed is used when the ambient temperature is too high to limit the output. The fan does not run during defrosting. At an ambient temperature lower than the temperature in the table below the fan speed is changed to high.

Type	Ambient temperature (°C)
8 kW	11
10 kW	13

F0 Fan off

F1 Fan on, low speed

F2 Fan on, high speed

Heater: H

The compressor heater is always active when the compressor is switched off.

The condensation water trough heater is connected during defrosting when the ambient temperature falls below or is equal to 2.5 °C.

If the collar heater is permitted (channel A14), it activates every third defrosting, when the ambient temperature lies below 2 °C.

H0 Compressor heater off
Condensation water trough heater off
Collar heater off

H1 Compressor heater on

H2 Condensation water trough heater on

H3 Compressor heater on
Condensation water trough heater on

H4 Collar heater on

H5 Compressor heater on
Collar heater on

H6 Condensation water trough heater on
Collar heater on

H7 Compressor heater on
Condensation water trough heater on
Collar heater on

Channel: S1

Shows the current channel. Change channels using the Plus button or the Minus button.

Value: 01

Shows the current value. Increase/decrease value using the plus button respective minus button.

Control conditions

Control conditions, cold outdoor air

- When the ambient air temperature (channel T1) drops below the set temperature in channel A7 the heat pump stops and indicates 03 in channel S1. Both the additional relay and the downtime relay are then activated at the same time.
- If the ambient temperature sensor registers a temperature that is at least 2.1 °C higher than the set temperature in channel A7, a time counter starts.
- When the time counter has reached 45 minutes, both the additional relay and downtime relay deactivate to obtain a more comfortable temperature for the compressor to start at.
- When a further 15 minutes have passed, the compressor is permitted to start and the additional relay activates a few seconds later. However, the downtime relay is deactivated.
- If the ambient temperature at any point during the total 60 minutes falls below channel A7 + 2.1 °C the counter is reset. It does not start counting again unless the temperature is sufficiently high once again.

B = Set temperature for cold outdoor air (channel A7).

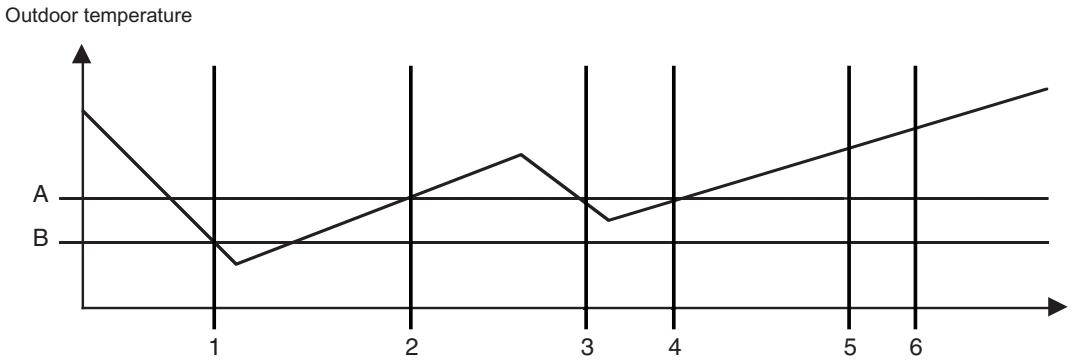
A = Set temperature for cold outdoor air + 2.1 °C.

1. The ambient temperature (channel T1) drops below the set temperature in channel A7 (B). The heat pump stops and both the relays are activated.
2. The ambient temperature is 2.1 °C) above the set temperature in channel A7 (A). A time counter starts from 0.
3. The ambient temperature falls below A. The timer is reset and stopped.
4. The ambient temperature returns to above A. The time counter starts again (from 0).
5. The time counter has counted to 45 minutes. Both relays are deactivated.
6. The time counter has counted to 60 minutes. The compressor is permitted to start again.

NOTE

It is heat pump's ambient temperature sensor that applies.

If VVM 300/SMO 10 is connected it is not the value in menu 4.0 but the value of the ambient temperature in menu 5.9 which is used.



Control conditions defrosting

- A time counter counts up every minute if the compressor is running and the temperature of the evaporator sensor (channel T7) falls below the setting in channel A9
- If the time counter has reached the setting in channel A8, defrosting starts.
- If the collar heater is activated in channel A14, the ambient temperature is less than or equivalent to 2 °C and the compressor is running the collar heater starts at every third defrosting. The collar heater prevents the build up of ice on the fan collar.
- If "defrosting fan" is activated in channel A15, depending on the evaporator temperature and if the collar heater is not operating defrosting fan starts at defrosting. Defrosting fan prevents ice build up on the fan blades and the front fan grille.

Defrosting occurs as follows:

1. The four way valve shifts to defrosting
2. The fan stops and the compressor continues to run.
3. When defrosting is complete the four way valve shifts back to heating mode and after 30 seconds the fan starts.
4. The ambient temperature sensor is locked and the high return temperature alarm is blocked for two minutes after defrosting.

There are five possible reasons for defrosting to finish:

1. The temperature of the evaporator sensor has reached the set temperature in channel A10 (normal stop).
2. Defrosting has run longer than set in channel A11. Can be due to insufficient energy in the heat source and/or that the sensor on the evaporator is poorly positioned and gives too low a temperature (in the event of cold outdoor air).
3. The temperature on the return sensor falls below 10 °C.
4. The high-pressure switch deploys during defrosting. This is indicated as alarm 10 in channel S1 and the compressor is stopped. After two minutes the compressor starts again (if the pressure has fallen), otherwise there is a constant high pressure alarm (alarm 06).
5. The temperature on the flow temperature sensor falls below 4 °C.

8 Control - Channels

Status channels

Status

These channels show the status and statistics.

Channel

S1 Shows the operating status of F2026.

Value

01 Normal operation.
02 Defrosting is run.
03 Cold outdoor air temperature.
04 High return temperature.
05 Low pressure switch (BP2) has tripped.
06 High pressure switch (BP1) has tripped.
07 Motor fuse (FC1) and/or phase sequence sensor(BA1) has deployed.
08 Sensor alarm. One of the temperature sensors is defective.
09 Communication error (only when SMO 05/SMO 10/NIBE innemodul is connected).
10 High pressure switch (BP1) has tripped during defrosting (resets automatically)
11 Not used.
12 Flow and return line sensors fitted incorrectly.
13 Hot outdoor air. Appears when the ambient temperature exceeds 35 °C.
14 High flow temperature.
15 Defrosting interrupted. Appears if defrosting is unsuccessful 3 times in a row.
16 Short operations times. Appears if operation time has been shorter than 2 minutes 3 times in a row.
17 Hot gas alarm. Appears when the hot gas exceeds 120 °C. The alarm resets automatically when the temperature falls below 60 °C. If the alarm is activated 3 times within 240 minutes it becomes continuous.

S2 ***Value***

Shows the compressor status.

00 Compressor off.
01 Compressor on.
XX Compressor blocked due to an alarm
nn Compressor start in nn minutes.

S3 Shows the number of compressor starts, accumulatively.
S4 Shows the compressor's operating time in hours, accumulatively.
S5 Shows the operating hours for connected additional heat, accumulatively.
S6 Shows whether any additions are activated

Active input indicated by 1.

Deactivated input indicated by 0.

S7 Alarm input status (HP, LP and BA1), 1 indicates the input is OK.

S7 1 / 1 / 1

S10 Software version number.

Temperature channels

Temp.

These channels show the current temperatures.

Channel

T1 Measured temperature on the ambient temperature sensor (BT28).
T2 Measured temperature on the flow temperature sensor (BT12).
T3 Measured temperature on the return line sensor (BT3).
T4 Measured temperature on the suction gas sensor (BT17).
T5 Measured temperature on the hot gas sensor (BT14).
T6 Measured temperature on the liquid line sensor (BT15).
T7 Measured temperature on the evaporator sensor (BT16).

Setting channels

Adjust.

All setting are made on these channels.

Channel

A1 Address for communication with SMO 05/SMO 10/NIBE indoor module (master).

When connecting to SMO 05/NIBE indoor module this channel should be on 1.

When connecting to SMO 10 this must be selected so that each F2026 (slave) in the system receives a unique address (1 – 9) for communication with SMO 10.

For example 3 x F2026 in the same system are allocated the addresses 1, 2 and 3. The F2026 that produces hot water should be set to 1.

A2 Max return temperature. When the return temperature reaches the set value the compressor stops. The value is adjustable between 25 and 50 °C. Factory setting 48 °C.

With SMO/NIBE indoor module connected this menu cannot be changed, it is locked at 50 °C.

A3 Connection difference return temperature. After the compressor is stopped for a high return temperature, the return temperature must drop by the set value in order to permit the compressor to start. The value is adjustable between 0 and 10 °C. Factory setting is 4 °C.

With SMO/NIBE indoor module connected this menu cannot be changed, it is locked at 2 °C.

A4 Minimum time period in minutes between compressor starts. The value is adjustable between 20 and 60 minutes. Factory setting 20 minutes.

A5 Balance temperature, the set ambient temperature when the additional relay can be activated from channel A6 without affecting compressor operations. Additional heat relay is activated first after the set time on channel A6. The value is adjustable between -15 and +10 °C. Factory setting is 0 °C.

A6 Continuous operating time with the compressor before additional heat is permitted. The value is adjustable between 1 and 120 minutes. Factory setting 120 minutes.

A7 Stop temperature, the set ambient temperature value when the downtime relay is activated, F2026 stops. When the stop temperature is set between 0 and -20 °C the flow temperature is limited linearly to -7 °C / 58 °C to -20 °C / 50 °C (see diagram on page 45). Factory setting is -20 °C.

A8 Minimum running time, heat production before new defrosting is permitted. The value is adjustable between 10 and 90 minutes. Factory setting according to the table below.

Type	Minutes
6 kW	60
8 kW	50
10 kW	45

A9 Start temperature for permitted defrosting (evaporator sensor). The value is adjustable between 1 and 5 °C. Factory setting 1 °C.

A10 Stop temperature for defrosting (evaporator sensor). The value is adjustable between 10 and 40 °C. Factory setting 10 °C.

A11 Longest permitted defrosting time. The value is adjustable between 5 and 12 minutes. Factory setting 7 minutes.

NOTE
In the event of any defrosting problems, the value in channel A11 can be increased to relieve the problem.

A12 Manual activation of defrosting procedure. Change the value 0 to 1 and confirm using the Enter button.

A13 Restore factory default settings. Change the value 0 to 1 and confirm using the Enter button.

A14 Activating the collar heater function. Change the value 0 till 1 and confirm using the Enter button.

A15 Activating the "defrosting fan" function. Change the value 0 till 1 and confirm using the Enter button.

9 Disturbances in comfort

Troubleshooting

NOTE
Work behind covers secured by screws may only be carried out by, or under the supervision of, a qualified installation engineer.

NOTE
As F2026 can be connected to a large number of external units, these should also be checked.

NOTE
In the event of action to rectify malfunctions that require work within screwed hatches the incoming electricity must isolated at the safety switch.

NOTE
In the event of any defrosting problems, the value in channel A11 can be increased to relieve the problem.

NOTE
Alarms are reset on indoor module.

The following tips can be used to rectify comfort disruption:

Basic actions

Start by checking the following possible fault sources:

- That the heat pump is running or that the supply cable to F2026 is connected.
- Group and main fuses of the accommodation.
- The property's earth circuit breaker.
- The heat pump's motor circuit breaker (FC1).
- The heat pump's automatic protection (FB1).

Low hot water temperature or a lack of hot water

This part of the fault-tracing chapter only applies if the heat pump is docked to the hot water heater.

- Large hot water consumption.
  - Wait until the hot water has heated up.
- Incorrect settings in the NIBE indoor module.
  - See the manual for the indoor module.

Low room temperature

- Closed thermostats in several rooms.
  - Set the thermostats to max in as many rooms as possible.
- External switch for changing the room heating activated.
  - Check any external switches.
- Incorrect settings in the NIBE indoor module.
  - See the manual for the indoor module.

High room temperature

- External switch for changing the room heating activated.
  - Check any external switches.
- Incorrect settings in the NIBE indoor module.
  - See the manual for the indoor module.

F2026 is not operational

- External control equipment has not given the start signal.
  - Check the settings on the control equipment.
- Fuses have tripped.
  - Replace the fuse or reset the MCB.
- Cold outdoor air. Indicated as 03 in channel S1.
  - Wait until the ambient temperature is 2 °C higher than the heat pump's set stop value.
- Tripped high pressure pressostat. Indicated as 06 in channel S1.
  - Check that the system has been vented correctly. Check the fuses. Check that the particle filter is not blocked. Check that the circulation pump is rotating.
- Tripped low pressure pressostat. Indicated as 05 in channel S1.
  - Ensure that the air flow is not blocked.
- Ambient temperature is hotter than 35 °C. Indicated as 13 in channel S1.
  - Wait until the ambient temperature is colder than 33 °C.
- Time conditions do not permit start.
  - Wait until the set conditions have run out. (If C flashes in the display the start conditions have been given.)
- Motor fuse (FC1) and/or phase sequence sensor(BA1) has deployed (MS alarm). Indicated as 07 in channel S1.
  - Check the fuses.
  - Check the phase sequence on incoming electricity supply.
- Flow and return line sensors fitted incorrectly. Indicated as 12 in channel S1.
  - Check the pipe installation.

- The heat pump will not defrost.
  - Check the temperature on the return line sensor (channel T3). If it is below 10 °C the heat pump will not defrost. Check the temperature on the evaporator sensor (channel T7). If it is higher than the set Start temperature, defrosting (channel A9) during compressor operation the heat pump will not defrost.

    Check the temperature on the return line sensor (BT3). If it is below 10 °C the heat pump will not defrost.
- High flow temperature (T2). Indicated as 14 in channel S1.
  - Check the charge flow and the particle filter which may be partially clogged.
- High return temperature (T3). Indicated as 04 in channel S1.
  - Check the charge flow and the note the compressor's limitations at low ambient temperatures.
- Unsuccessful defrosting. Indicated as 15 in channel S1.
  - Check the charge flow.
- Short operations times Indicated as 16 in channel S1.
  - Check the connection difference for the thermostat. Check the start temperature hot water in any NIBE indoor module. Check the charge flow and the particle filter which may be partially clogged.
- Hot gas temperature exceeds 120 °C. Indicated as 17 in channel S1.
  - Contact refrigeration technician.

Ice build up in the fan collar

NOTE
Only applies in certain areas.

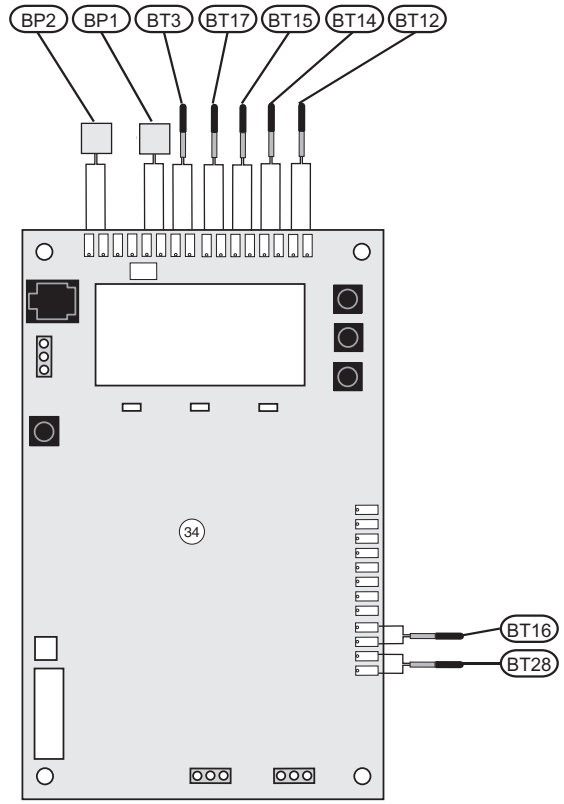
- Collar heater (channel A14) not activated.
  - Activate the collar heater in channel A14.

Ice build up on the fan blades and front grille

NOTE
Only applies in certain areas.

- "Defrosting fan" (channel A15) not activated.
  - Activate "defrosting fan" in channel A15.

Sensor placement



BP1 High pressure pressostat
BP2 Low pressure pressostat
BT3 Temperature sensor, heating medium return line
BT12 Temperature sensor, condenser supply line
BT14 Temperature sensor, hot gas
BT15 Temperature sensor, fluid pipe
BT16 Temperature sensor, evaporator
BT17 Temperature sensor, suction gas
BT28 Ambient temperature sensor

Data for return line temperature sensor (BT3), condensor supply (BT12) and fluid pipe (BT15)

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

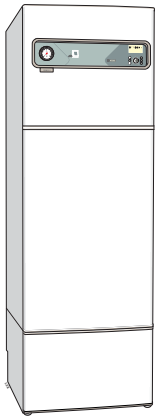
Data for hot gas sensor (BT14)

Temperature (°C)	Resistance (kOhm)	Voltage (V)
40	118.7	4.81
45	96.13	4.77
50	78.30	4.72
55	64.11	4.66
60	52.76	4.59
65	43.64	4.51
70	36.26	4.43
75	30.27	4.33
80	25.38	4.22
85	21.37	4.10
90	18.07	3.97
95	15.33	3.83
100	13.06	3.68
105	11.17	3.52
110	9.59	3.36
115	8.26	3.19
120	7.13	3.01
125	6.18	2.84
130	5.37	2.67
135	4.69	2.50
140	4.10	2.33

Data for evaporator sensor (BT16), ambient temperature sensor (BT28) and suction gas sensor (BT17)

Temperature (°C)	Resistance (kOhm)	Voltage (VDC)
-50	77.58	4.71
-45	57.69	4.62
-40	43.34	4.51
-35	32.87	4.37
-30	25.17	4.21
-25	19.43	4.03
-20	15.13	3.82
-15	11.88	3.58
-10	9.392	3.33
-5	7.481	3.07
0	6.000	2.80
5	4.844	2.54
10	3.935	2.28
15	3.217	2.03
20	2.644	1.80
25	2.186	1.59
30	1.817	1.39
35	1.518	1.22
40	1.274	1.07
45	1.075	0.93
50	0.911	0.81
55	0.775	0.71
60	0.662	0.62
65	0.568	0.54
70	0.490	0.47
75	0.4233	0.41
80	0.367	0.36
85	0.320	0.32
90	0.280	0.28
95	0.245	0.25
100	0.216	0.22

10 Accessories



VVM 300

Indoor module.

Part no. 069 010

VPA

Double-jacketed hot water cylinder

VPA 300/200 Part No. 088 710

VPA 450/300 Part No. 088 660

SMO 10

Control box

Part no. 089 638

KVR 10

Condensation water pipes, different lengths.

KVR 10-10, 1 m
Part no. 067 171

KVR 10-30, 2.5 m
Part no. 067 172

KVR 10-60, 5 m
Part no. 067 173

HR 10

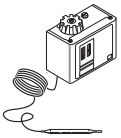
Auxiliary relay

Part no. 089 423

RT 10

Room thermostat

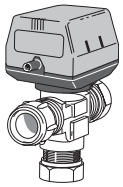
Part no. 418 366



VT 10

Heating thermostat

Part no. 418 801



VST 11

Hot water control

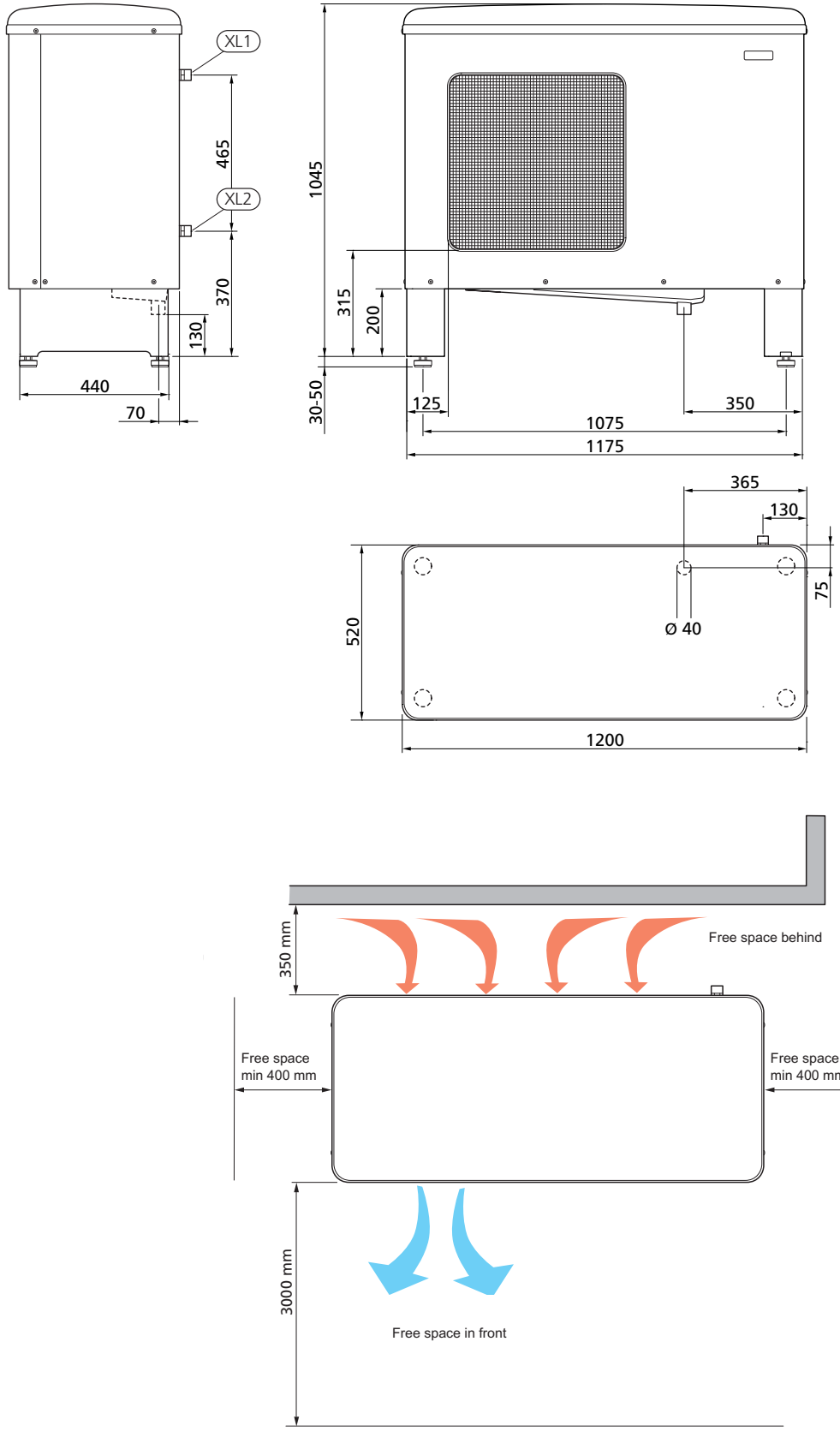
Shuttle valve, Cu-pipe Ø28

Max recommended charge power, 15 kW

Part no. 089 152

11 Technical data

Dimensions and setting-out coordinates

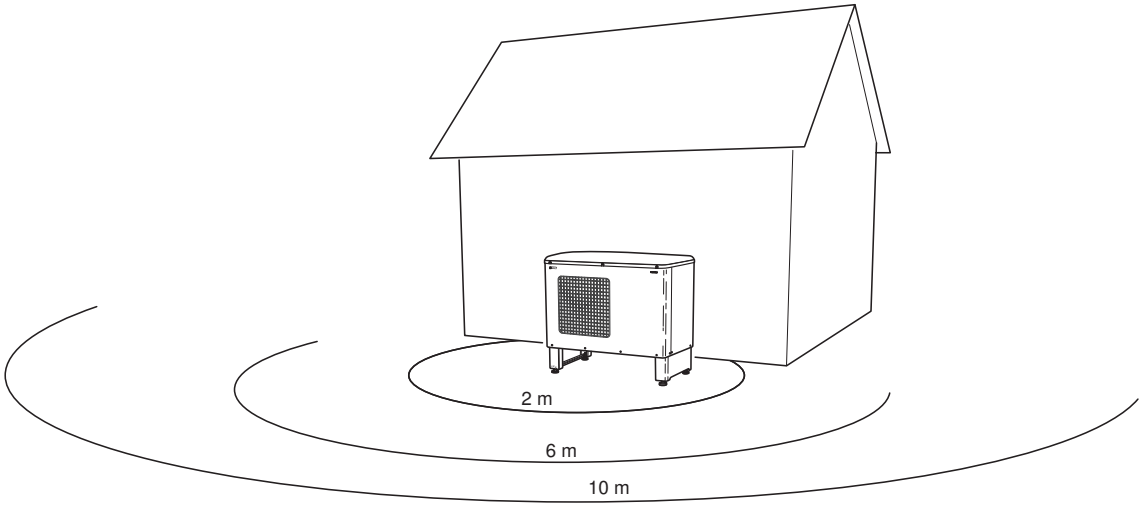


Sound pressure levels

F2026 is usually placed next to a house wall, which gives a directed sound distribution that should be considered. Accordingly, you should always attempt when positioning to choose the side that faces the least sound sensitive neighbouring area.

The sound pressure levels are further affected by walls, bricks, differences in ground level, etc and should therefore only be seen as guide values.

F2026 works with low fan speed or high fan speed depending on the ambient temperature (does not apply to F2026 - 6 kW which only has one fan speed).



		F2026-6	F2026-8	F2026-10
Sound power level	L_W(A)	57	57/62	57/62
Sound pressure level at 2 m. Fan low/high*	dB(A)	43	43/48	43/48
Sound pressure level at 6 m. Fan low/high*	dB(A)	33.5	33.5/38.5	33.5/38.5
Sound pressure level at 10 m. Fan low/high*	dB(A)	29	29/34	29/34

*Free space.

Technical specifications

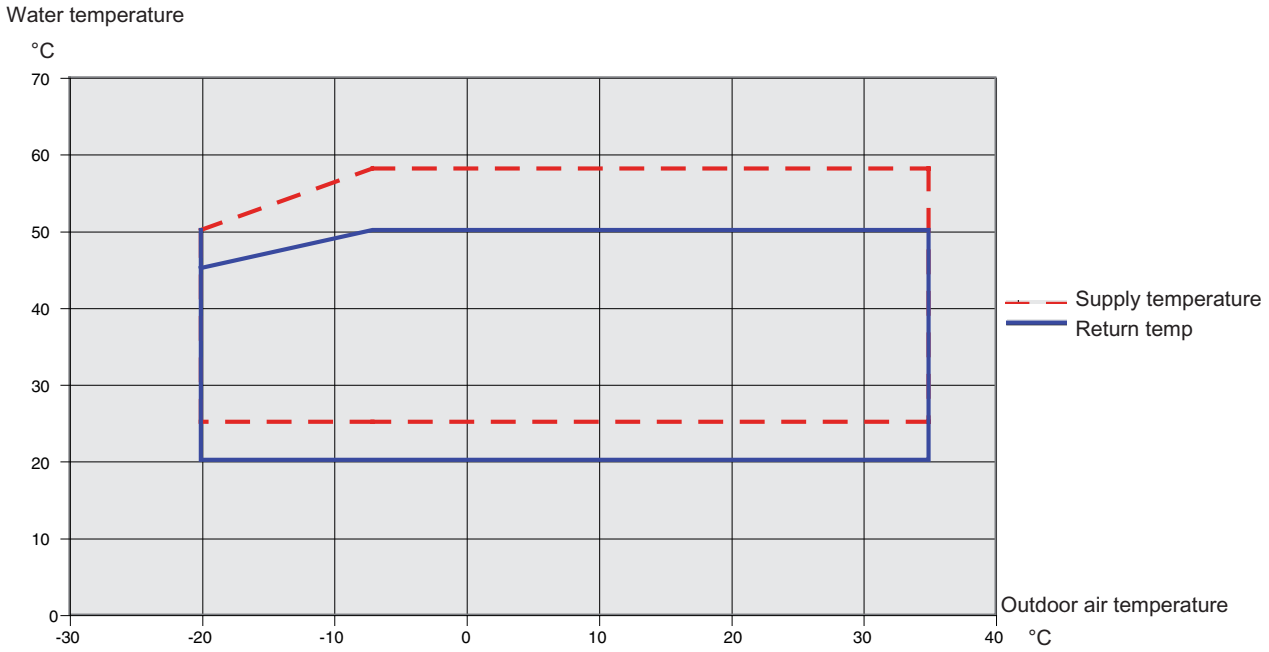
3x400V		6	8	10
Output data at nominal flows [1]				
15/55 Delivered / Supplied power / COP	kW/kW/-	7.35/2.30/3.20	9.80/3.04/3.22	11.52/3.58/3.22
7/35 Delivered / Supplied power / COP	kW/kW/-	6.78/1.53/4.43	9.30/2.23/4.17	10.90/2.65/4.11
7/55 Delivered / Supplied power / COP	kW/kW/-	6.07/2.26/2.69	8.32/2.96/2.81	9.89/3.47/2.85
2/35 Delivered / Supplied power / COP	kW/kW/-	5.90/1.55/3.81	8.11/2.14/3.78	9.40/2.54/3.71
2/45 Delivered / Supplied power / COP	kW/kW/-	5.56/1.81/3.07	7.68/2.47/3.11	9.08/2.92/3.11
2/55 Delivered / Supplied power / COP	kW/kW/-	5.23/2.26/2.31	7.11/2.86/2.48	8.70/3.37/2.58
-7/35 Delivered / Supplied power / COP	kW/kW/-	4.34/1.56/2.78	6.02/1.98/3.04	7.31/2.37/3.08
-7/45 Delivered / Supplied power / COP	kW/kW/-	4.25/1.77/2.40	5.81/2.30/2.52	7.05/2.74/2.58
-7/55 Delivered / Supplied power / COP	kW/kW/-	3.94/2.16/1.82	5.55/2.66/2.09	6.70/3.12/2.15
-15/35 Delivered / Supplied power / COP	kW/kW/-	3.60/1.47/2.44	4.88/1.87/2.61	5.77/2.22/2.60
-15/45 Delivered / Supplied power / COP	kW/kW/-	3.50/1.94/1.80	4.22/2.47/1.71	5.69/3.01/1.89
Output data according to EN 14511				
7/35 Delivered / Supplied power / $COP_{EN14511}$	kW/kW/-	6.24/1.50/4.16	8.57/2.21/3.87	9.80/2.62/3.74
7/45 Delivered / Supplied power / $COP_{EN14511}$	kW/kW/-	5.95/1.75/3.40	8.30/2.55/3.26	9.60/2.99/3.21
Electrical data				
Rated voltage		400V 3NAC 50 Hz		
Max operating current, heat pump	A_{rms}	4.9	6.4	7.6
Max operating current, compressor	A_{rms}	4.3	5.9	6.9
Starting current	A_{rms}	18	24	27
Max permitted impedance at connection point [2]	Ohm	-	-	-
Nominal output fan (low/high)	W	70	90/130	90/130
Fuse	A_{rms}	10	10	10
Refrigerant circuit				
Type of refrigerant		R404A		
Type of compressor		Scroll		
Volume	kg	2.0	2.2	2.2
Cut-out value pressostat HP	MPa	2.9 (29 bar)		
Difference pressostat HP	MPa	-0.7 (-7 bar)		
Cut-out value pressostat LP	MPa	0.03 (0.3 bar)		
Difference pressostat LP	MPa	0.07 (0.7 bar)		
Brine				
Airflow	m^3/h	1500	1700/ 2000	1700/ 2000
Max/Min air temp	°C	-20/35		
Defrosting system		hot gas defrosting		
Heating medium				
Min/Max system pressure heating medium	MPa	0.05/0.3 (0.5/3 bar)		
Nominal flow (Min flow at defrosting.)	l/s	0.16	0.20	0.25
Internal pressure drop at nominal flow	kPa	1.3	1.5	2.2
Max/Min heating medium temp continuous operation	°C	58/20		
Connection heating medium ext thread	mm	G1 (?28 mm)		
Dimensions and weight				
Width	mm	1200		

3x400V		6	8	10
Depth	mm	520		
Height with stand	mm	1095		
Weight (excl. packaging)	kg	146	148	149
Miscellaneous				
Enclosure class		IP 24		
Colour		dark grey		
Part No.		064 084	064 085	064 086

[1]Quoted outputs refer to compressor, fan and control at nominal heating medium flow. During operation that requires defrosting the relationship between input and output is reduced by about 10%.

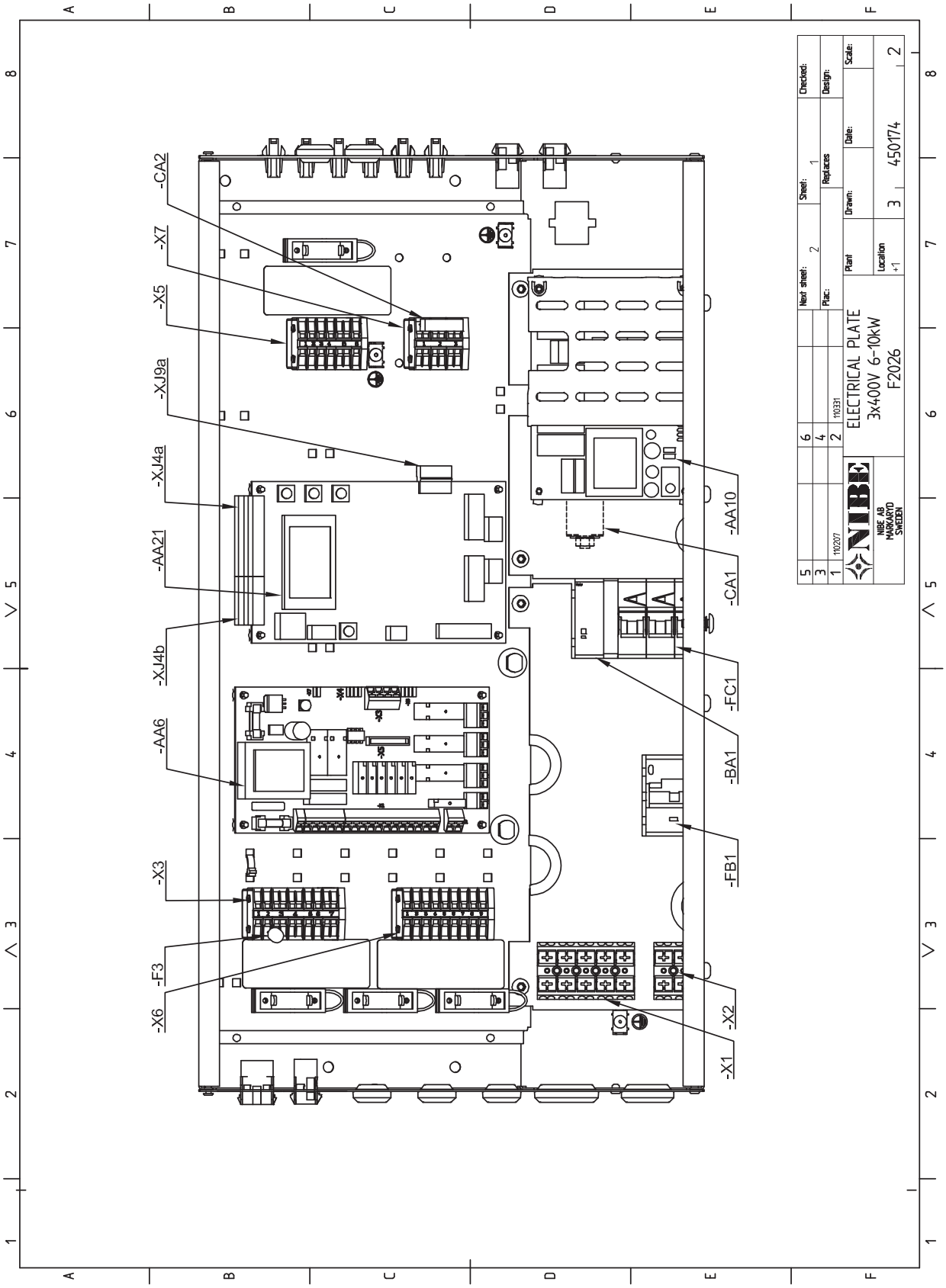
[2]Max. permitted impedance in the mains connected point in accordance with EN 61000-3-11. Start currents can cause short voltage dips that could affect other equipment in unfavourable conditions. If the impedance in the mains connection point is higher than that stated it is possible that interference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

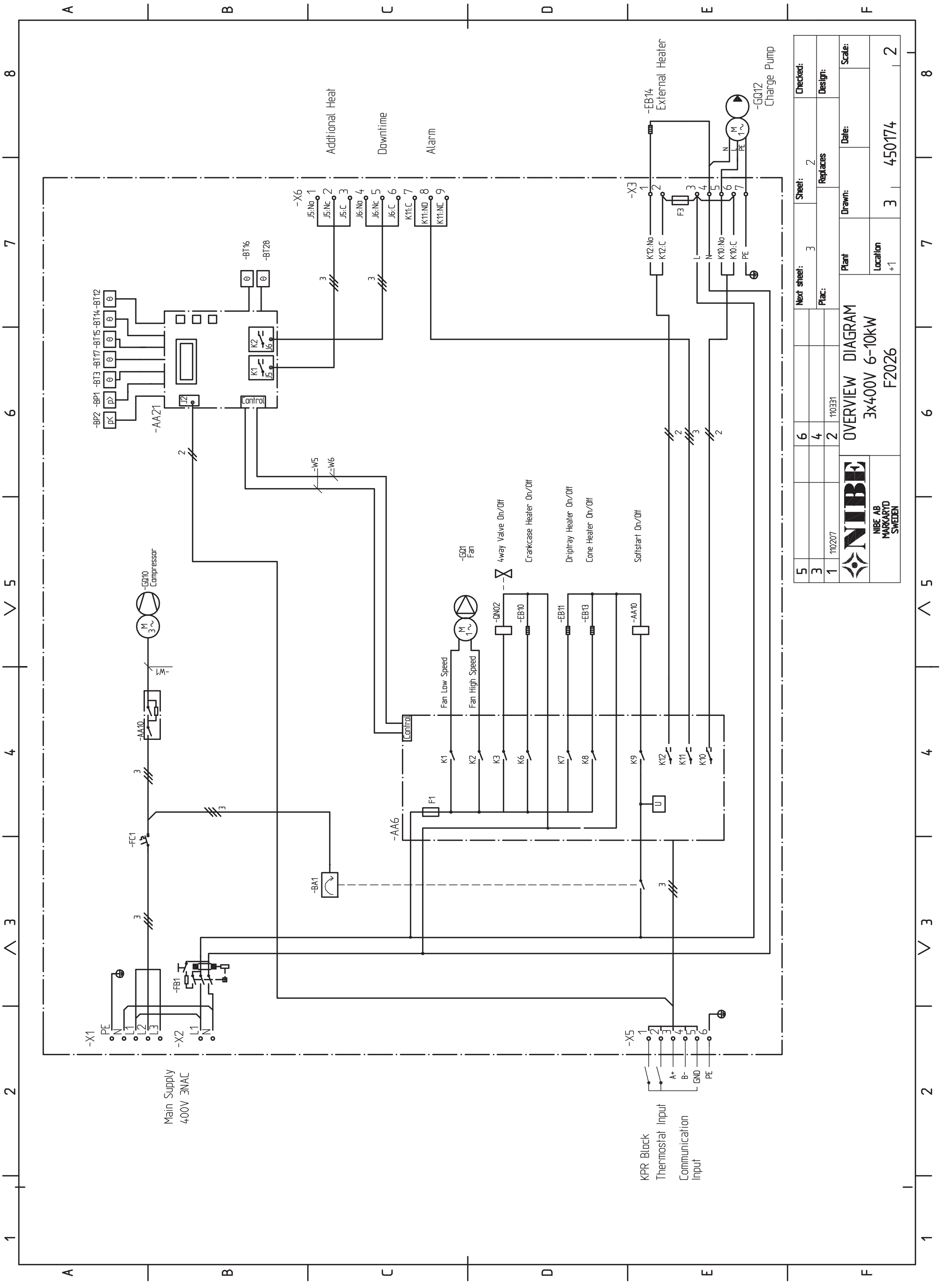
Working area

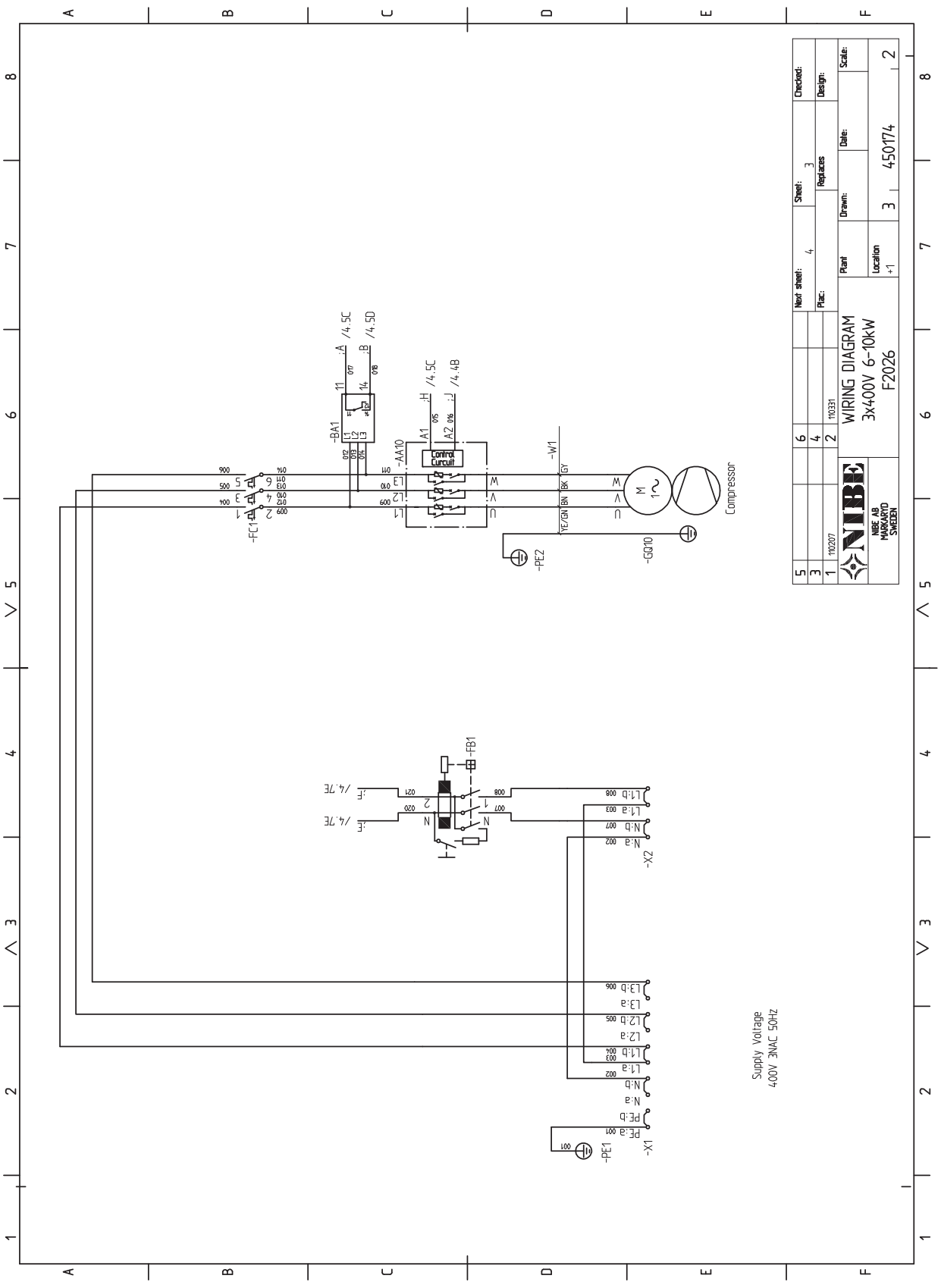


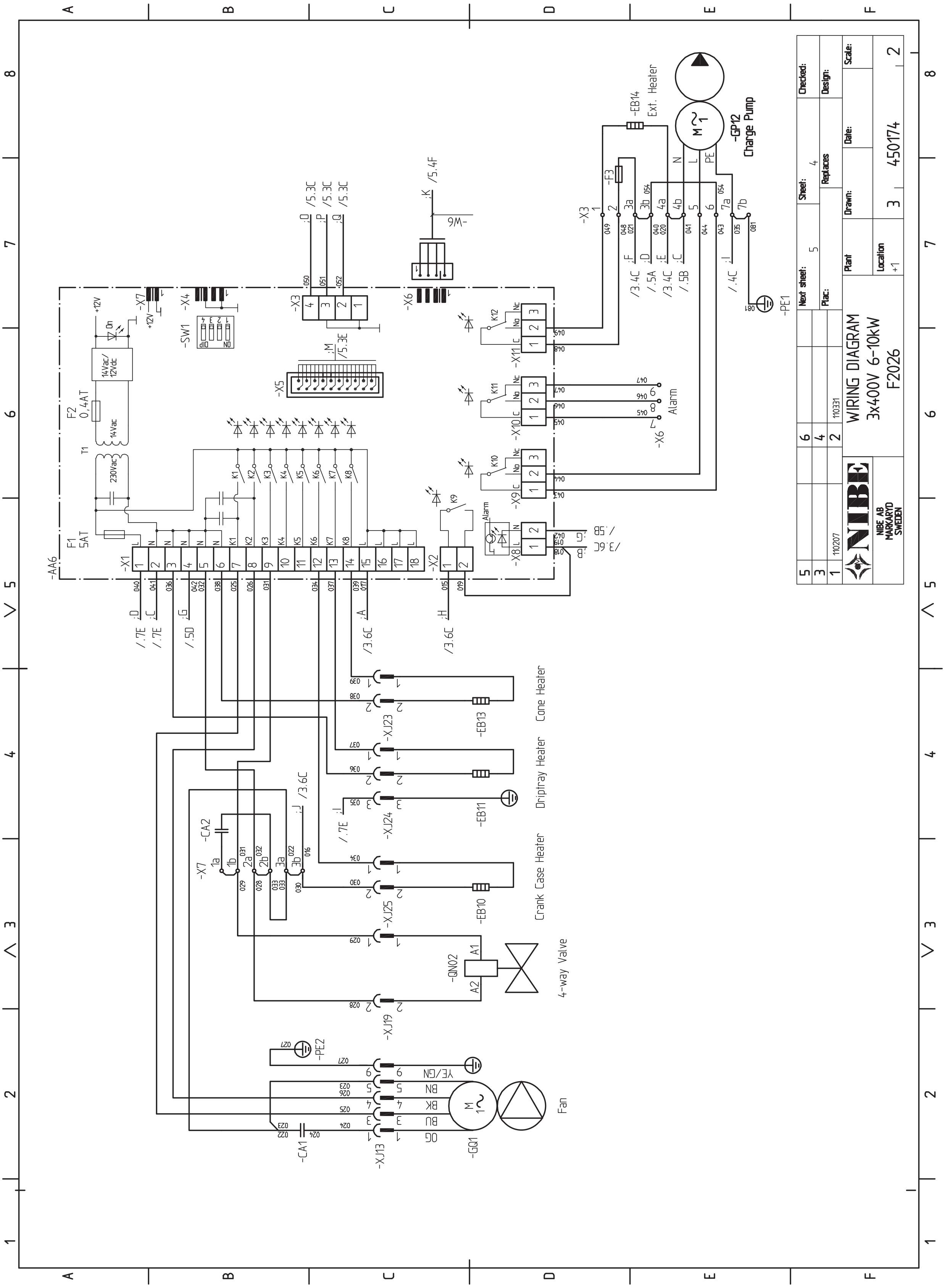
During shorter time it is allowed to have lower working temperatures on the water side, e.g. during start up.

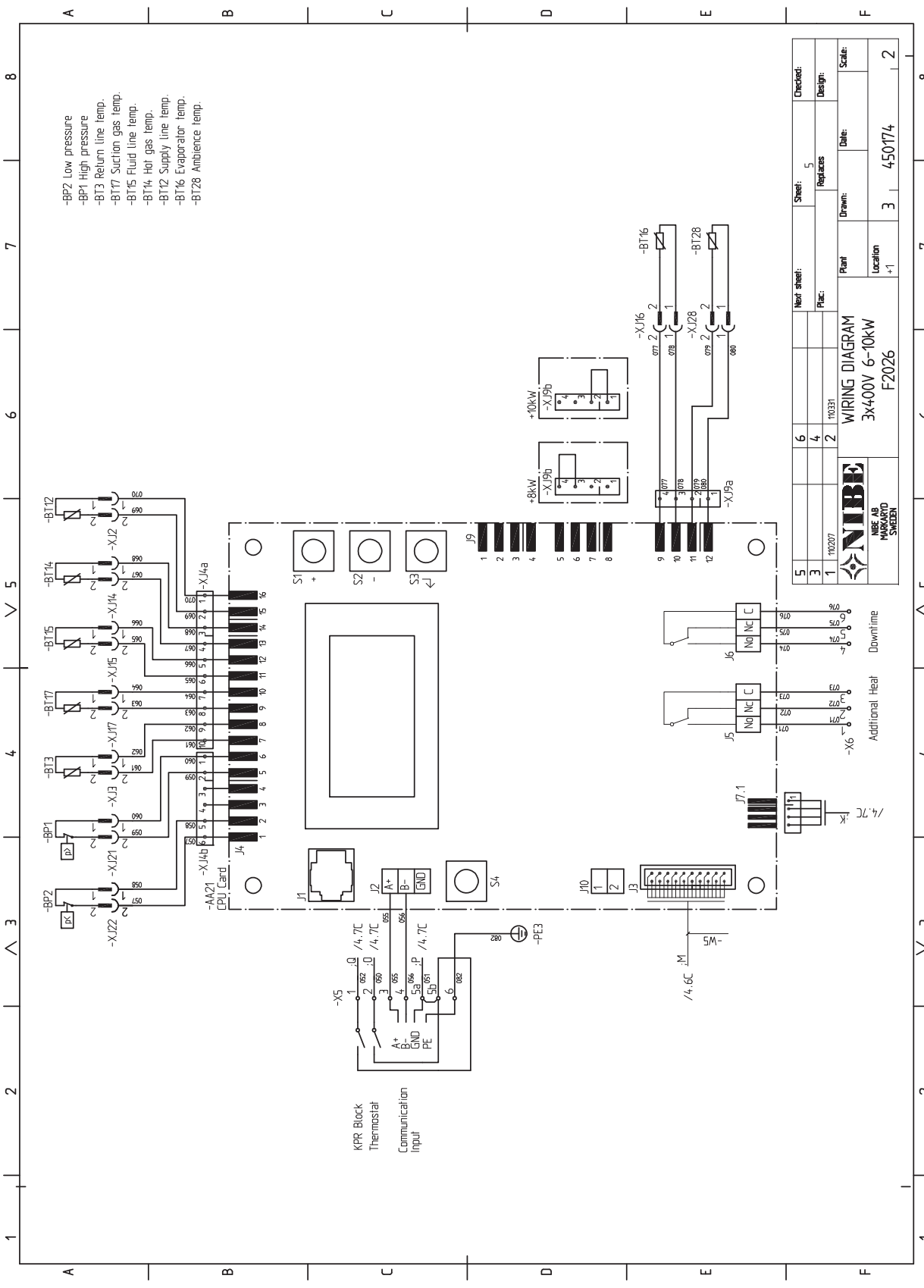
Electrical circuit diagram




OVERVIEW DIAGRAM
3x400V 6-10kW
F2026
450174
NIBE AB
MARKARYD
SWEDEN
Main Supply
400V 3NAC
KPR Block
Thermostat Input
Communication
Input
Additional Heat
Downtime
Alarm
-EB14
External Heater
-GQ12
Charge Pump
-GQ10
Compressor
-GQ1
Fan
Fan Low Speed
Fan High Speed
4way Valve On/Off
Crankcase Heater On/Off
Driptray Heater On/Off
Cone Heater On/Off
Softstart On/Off
-AA21
-AA6
-X1
-X2
-X3
-X5
-X6


WIRING DIAGRAM
3x400V 6-10kW
F2026
NIBE AB
MARKARYD
SWEDEN
Compressor
Supply Voltage
400V 3NAC 50Hz
-FC1
-BA1
-AA10
-W1
-GQ10
-PE2
-FB1
-X2
-X1
-PE1


WIRING DIAGRAM
3x400V 6-10kW
F2026
450174
NIBE AB
MARKARYD
SWEDEN
Fan
4-way Valve
Crank Case Heater
Driptray Heater
Cone Heater
Charge Pump
Ext. Heater
Alarm


-BP2 Low pressure
-BP1 High pressure
-BT3 Return line temp.
-BT17 Suction gas temp.
-BT15 Fluid line temp.
-BT14 Hot gas temp.
-BT12 Supply line temp.
-BT16 Evaporator temp.
-BT28 Ambience temp.
WIRING DIAGRAM
3x400V 6-10kW
F2026
NIBE AB
MARKARYD
SWEDEN
Plant
Location
Drawn:
Date:
Design:
Checked:
Scale:
Sheet:
Replaces
Next sheet:
Plac:
-AA21
CPU Card
-XJ4a
-XJ4b
-XJ2
-XJ14
-XJ15
-XJ17
-XJ3
-XJ21
-XJ22
-XJ16
-XJ28
-XJ9a
-XJ9b
+8kW
+10kW
-BT12
-BT14
-BT15
-BT17
-BT3
-BP1
-BP2
-BT16
-BT28
S1
S2
S3
S4
J1
J2
J3
J4
J5
J6
J7.1
J9
J10
-X5
-X6
-PE3
-WS-
KPR Block
Thermostat
Communication
Input
Additional Heat
Downtime

12 Item register

Item register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