Installer manual

Air/water heat pump
NIBE F2050 UK 1x230V

IHB EN 2426-2
731658

Table of Contents

1 Important information 4
Safety information 4
Symbols 4
Marking 4
Serial number 5
Country specific information 5
Inspection of the installation 7
Compatible indoor modules and control modules 8
Indoor module 8
Control module 8

2 Delivery and handling 9
Transport 9
Assembly 9
Condensation 11
Supplied components 12
Installing the plinth around F2050-12/-16 12
Dismantling panels 13
Dismantling cardboard box 14

3 The heat pump design 15
General 15
Electrical connection 20
Sensor placement 22

4 Pipe connections 25
General 25
Symbol key 26
Pipe coupling heating medium circuit 26
Installation alternative 28

5 Electrical connections 29
General 29
Accessibility, electrical connection 29
Connections 30

6 Commissioning and adjusting 35
Preparations 35
Filling and venting 35
Compressor heater F2050-10 35
Start-up and inspection 36
Readjusting, heating medium side 36
Adjustment, charge flow 37

7 Control - Heat pump EB101 38
S-series – indoor module / control module 38
F-series – indoor module / control module 39

8 Service 40
Temperature sensor data 40

9 Servicing and maintenance 42
Important 42
General inspection 42
Heating System 42

10 Disturbances in comfort 43
Troubleshooting 43
Alarm list 44

11 Accessories 46

12 Technical data 47
Dimensions 47
Sound levels 49
Technical specifications 50
Energy labelling 56
Electrical circuit diagram 61

Item register 67

Contact information 71

Important information

Safety information

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

The manual must be left with the customer.

For the latest version of the product's documentation, see nibe.co.uk.

> **CAUTION!**
>
> Also read the enclosed Safety Manual before starting the installation.

Symbols

Explanation of symbols that may be present in this manual.

> **CAUTION!**
>
> This symbol indicates danger to person or machine.

> **NOTE!**
>
> This symbol indicates important information about what you should consider when installing or servicing the installation.

> **TIP!**
>
> This symbol indicates tips on how to facilitate using the product.

Marking

Explanation of symbols that may be present on the product's label(s).


Fire hazard!


Flammable.

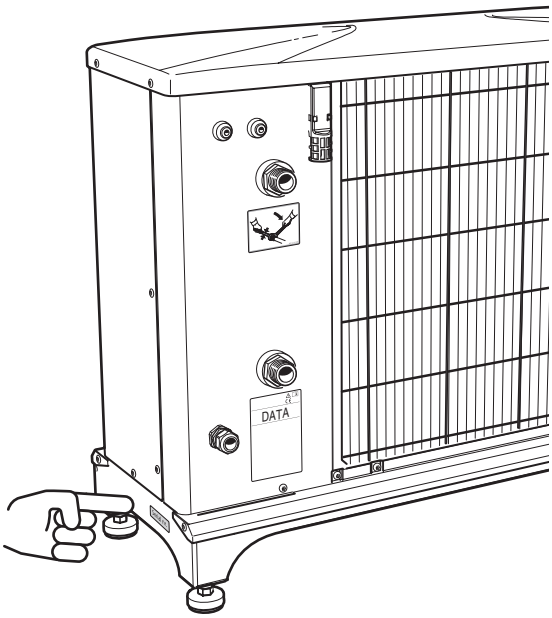

Read the User Manual.


Read the User Manual.

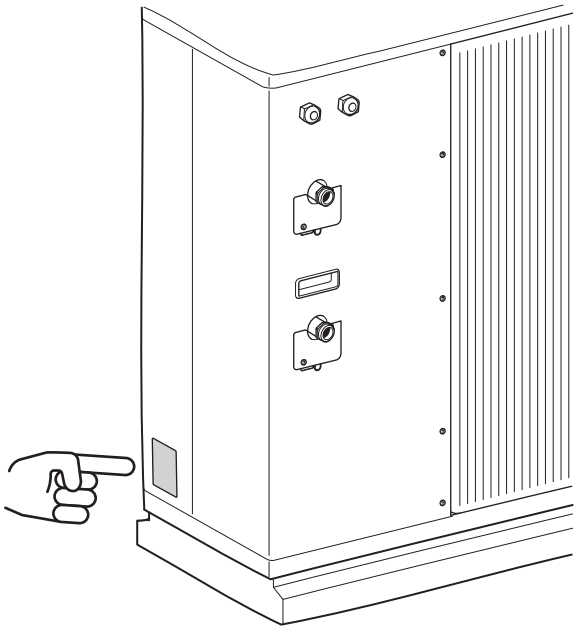

Read the Installer Manual.

Serial number

The serial number for F2050-6 and F2050-10 can be found on the side of the foot.



The serial number for F2050-12 and F2050-16 can be found on the right-hand side.



NOTE!

You need the product's serial number for servicing and support.

Country specific information

UNITED KINGDOM

This installation is subject to building regulation approval, notify the local Authority of intention to install.

Use only manufacturer's recommended replacement parts.

For more information see nibe.co.uk.

benchmark
COLLECTIVE MARK
THE MARK OF QUALITY FOR THE INSTALLATION, COMMISSIONING AND SERVICING OF DOMESTIC HEATING AND HOT WATER SYSTEMS

Benchmark places responsibilities on both manufacturers and installers. The purpose is to ensure that customers are provided with the correct equipment for their needs, that it is installed, commissioned and serviced in accordance with the manufacturers instructions by competent persons and that it meets the requirements of the appropriate Building Regulations. The Benchmark Checklist can be used to demonstrate compliance with Building Regulations and should be provided to the customer for future reference.

Installers are required to carry out the installation, commissioning and servicing work in accordance with the Benchmark Code of practice which is available from the Heating and Hotwater Industry Council who manage and promote the Scheme. Visit centralheating.co.uk for information.

Warranty and insurance information

Thank you for installing a new NIBE heat pump in your home.

NIBE heat pumps are manufactured in Sweden to the very highest standard so we are pleased to offer our customers a comprehensive guarantee.

The product is guaranteed for 24 months for parts and labour from the date of installation or 33 months from the date of manufacture, whichever is the shorter.

The NIBE guarantee is based on the unit being installed and commissioned by a NIBE accredited installer, serviced every year and the Benchmark documents completed. Where this condition is not met, any chargeable spare parts or components issued within the applicable guarantee period still benefit from a 12 month warranty from the date of issue by the manufacturer.

We recommend the installer completes and returns as soon as possible, your guarantee registration card or completes the guarantee form on the NIBE website, www.nibe.co.uk

Electrical Supply

The heat pump must be permanently connected to a 230 V ~ 50 Hz supply.

All system components shall be of an approved type and all wiring to current I.E.E wiring regulations.

External wiring must be correctly earthed, polarised and in accordance with the relevant standards: Currently this is BS 7671.

Heating System

The installation of the heat pump should follow best practice as covered in the following:

BS 5449 Forced circulation hot water central heating systems for domestic premises.

BS 15450 Heating systems in buildings – Design of heat pump heating systems.

Inspection of the installation

Current regulations require the heating installation to pass an installation inspection before it is commissioned. The inspection must be carried out by a suitably qualified person. In addition, complete the page in the User Manual for information about the installation data.

✔	Description	Notes	Signature	Date
Heating medium (page 26)				
	System flushed			
	System vented			
	Particle filter			
	Shut-off and drain valve			
	Charge flow set			
Electricity (page 29)				
	Fuses property			
	Safety breaker			
	Earth circuit-breaker			
	Heating cable type/effect			
	Fuse size, heating cable (F3)			
	Communication cable connected			
	F2050 addressed (only when cascade connection)			
	Connections			
	Main voltage			
	Phase voltage			
	When installing F2050-6, check that the software version of the indoor module/control module is at least v8320.			
Miscellaneous				
	Warranty			
	Benchmark checklist			

Compatible indoor modules and control modules

	VVM S320	SMO S40
F2050-6	X	X
F2050-10	X	X
F2050-12	X	X
F2050-16		X

	VVM 225	SMO 20	SMO 40
F2050-6	X	X	X
F2050-10	X	X	X
F2050-12	X	X	X
F2050-16		X	X

Indoor module

VVM S320
Stainless steel, 1x230 V
With T&P valve
Part no. 069 199

VVM 225[1]
Stainless steel, 1x230 V
With T&P valve
Part no. 069 232

1 In combination with F2050-12, the system must be supplemented with NIBE UKV.

Control module

SMO S40
Control module
Part no. 067 654

SMO 20
Control module
Part no. 067 224

SMO 40
Control module
Part no. 067 225

Delivery and handling

Transport

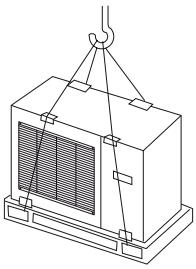
F2050 should be transported and stored vertically in a dry place.

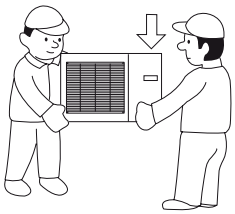
> **CAUTION!**
>
> Ensure that the heat pump cannot fall over during transport.

Check that F2050 has not been damaged during transport.

LIFT FROM THE STREET TO THE SET UP LOCATION

If the surface allows, the easiest method is to use a pallet truck to move the heat pump to the installation area.





If the heat pump needs to be transported across soft ground, such as a lawn, we recommend using a crane truck that can lift it to the installation location. When the heat pump is lifted with a crane, the packaging must be intact.

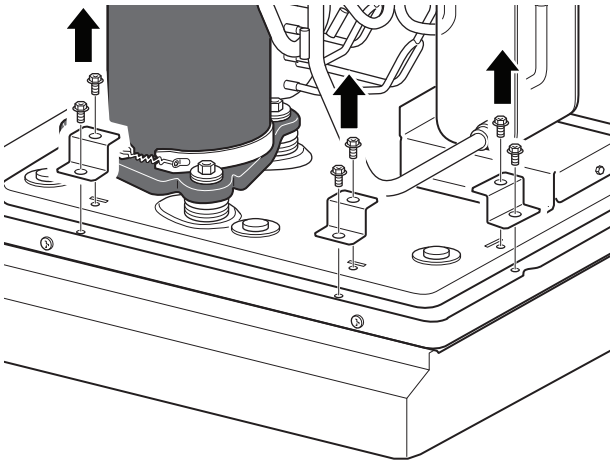
If a crane truck cannot be used, the heat pump can be transported on an extended sack truck. The heat pump must be taken hold of from its heaviest side and two people are required to lift it.

LIFT FROM THE PALLET TO FINAL POSITIONING

Before lifting remove the packaging and the securing strap to the pallet.

Place lifting straps around each foot. It is recommended that two people perform the lift from the pallet to the base.

After the final placement of F2050-12/-16, the three transport securing devices that are attached to the base plate and in the compressor plate are removed.



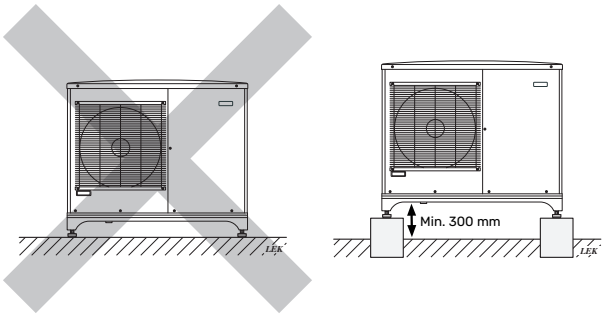
SCRAPPING

When scrapping, remove the heat pump in reverse order. In this case, lift by the base plate rather than the pallet!

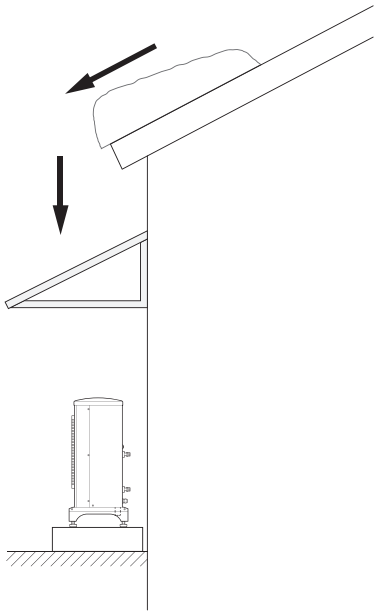
Assembly

- Place the heat pump in a suitable location outdoors to prevent any risk of the refrigerant flowing in through ventilation openings, doors or similar openings in the event of a leak. It must also not constitute a hazard to people or property in any other way.
- If the heat pump is placed in a location where any refrigerant leak could accumulate, for example below ground level (in a dip or low-lying recess), the installation must satisfy the same requirements that apply for gas detection and the ventilation of engineering rooms. Requirements regarding sources of ignition must be applied where appropriate.
- Place F2050 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 lower edge of the evaporator must not be lower than the level of the average local snow depth, or at least 300 mm above ground level. The base should be at least 70 mm tall.
- F2050 should not be positioned next to noise sensitive walls, for example, next to a bedroom.
- Also ensure that the placement does not inconvenience the neighbours.

- F2050 must not be placed so that recirculation of the outdoor air is possible. Recirculation entails reduced power and impaired efficiency.
- The evaporator must be sheltered from direct wind / , which negatively affects the defrosting function. Place F2050 protected from wind / against the evaporator.
- Large amounts of condensation, as well as melt water from defrosting, may be produced. Condensation must be led off to a drain or similar (see section “Condensation water").
- Care must be exercised so that the heat pump is not scratched during installation.



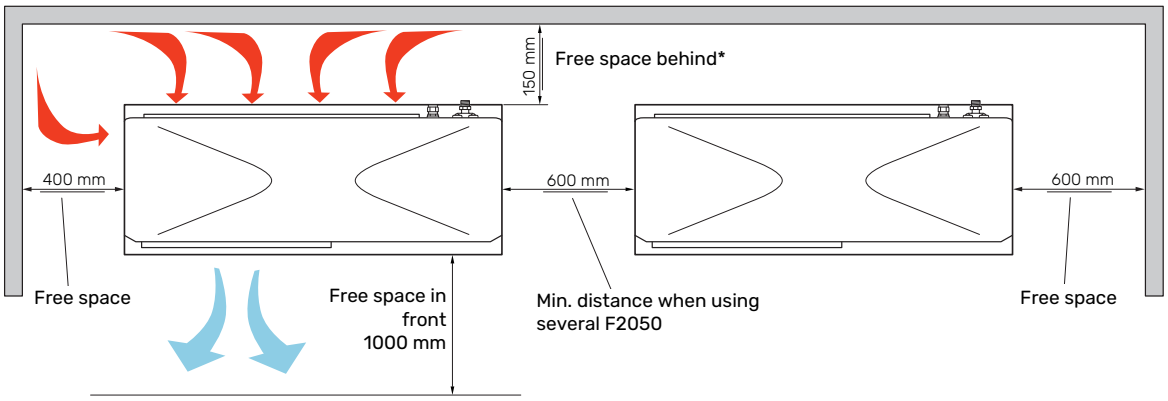
Do not place F2050 directly on the lawn or other non solid surface.



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.

INSTALLATION AREA

The distance between F2050 and the house wall must be at least 150 mm, but not more than 500 mm in locations that are exposed to the wind. The free space above F2050 must be at least 1,000 mm. The free space in front must be at least 1,000 mm for any future servicing.



* The space behind must not exceed 500 mm in locations that are exposed to the wind.

Condensation

The condensate drain pan collects and leads away the condensation water.

> **CAUTION!**
>
> 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 can cause damage to the house.
>
> Condensation run-off should be checked regularly, especially during the autumn. Clean if necessary.

- The condensation water (up to 50 litres / 24 hrs) must be routed away by a pipe to an appropriate drain, it is recommended that the shortest outdoor length possible is used.
- The section of the pipe that can be affected by frost must be heated by the heating cable to prevent freezing.

> **TIP!**
>
> Pipe with heating cable for draining the condensation water trough is not included.

> **TIP!**
>
> To ensure this function, the accessory KVR should be used.

- Route the pipe downward from the heat pump.
- The outlet of the condensation water pipe must be at frost free depth.
- Use a water trap for installations where air circulation may occur in the condensation water pipe.
- The insulation must seal against the bottom of the condensation water trough.

DRAIN PAN HEATER, CONTROL

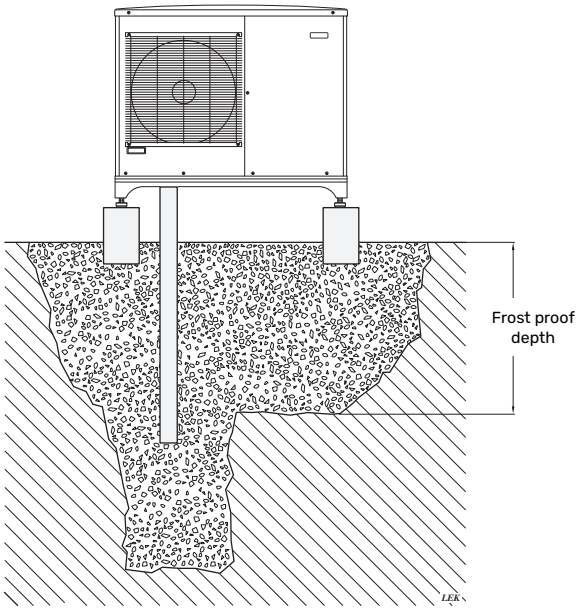
The drain pan heater is supplied with power when one of the following conditions is met:

1. The compressor has been in operation for at least 30 minutes after last start.
2. The ambient temperature is lower than 1 °C.

DRAINAGE OF CONDENSATION

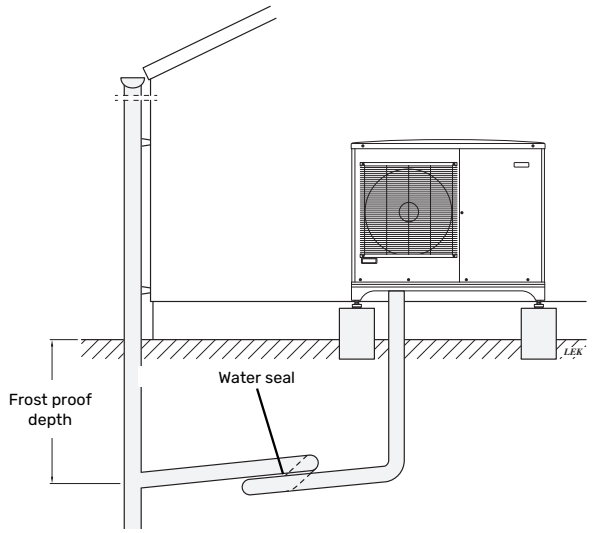
> **NOTE!**
>
> If none of the following recommended alternatives is used, good drainage of condensation must be provided.

Stone caisson



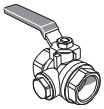
If the house has a cellar the stone caisson must be positioned so that condensation water does not affect the house. Otherwise the stone caisson can be positioned directly under the heat pump.

Gutter drainage

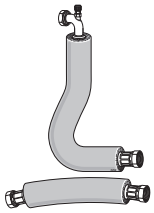


Route the pipe sloping down from the heat pump. The condensation water pipe must have a water seal to prevent air circulation in the pipe.

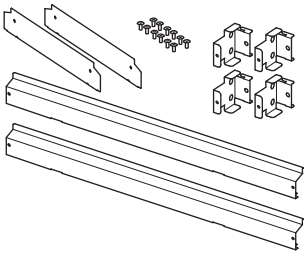
Supplied components



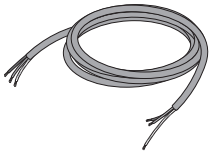
1 x filterball (G1") (QZ2)



2 x flexible pipes (DN25, G1") with 4 x gaskets



1 x plinths

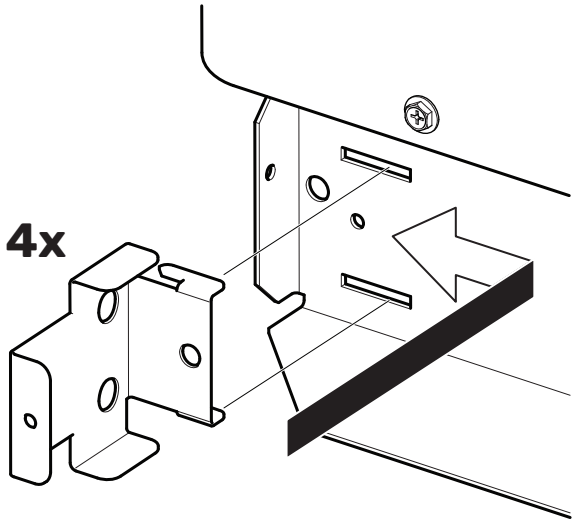


1 x incoming power supply cable (W1)[1]

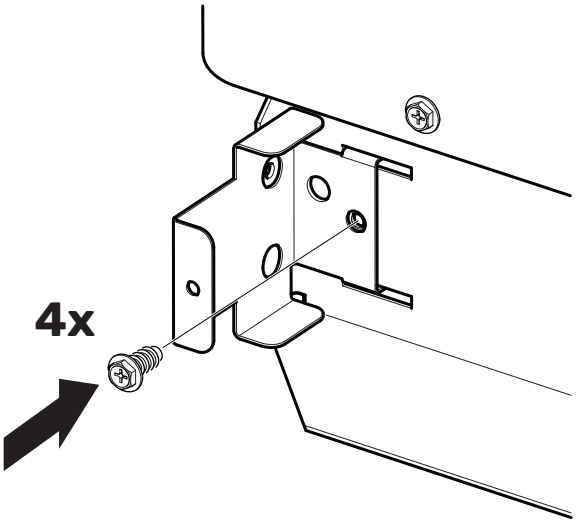
Installing the plinth around F2050-12/-16

A plinth is enclosed with F2050-12/-16.

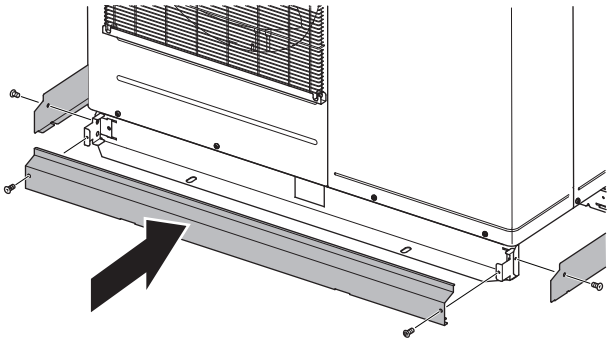
1. Install the four spacer brackets, one in each corner.



2. Attach with the enclosed screws.



3. Install the four skirting boards and attach with the enclosed screws.

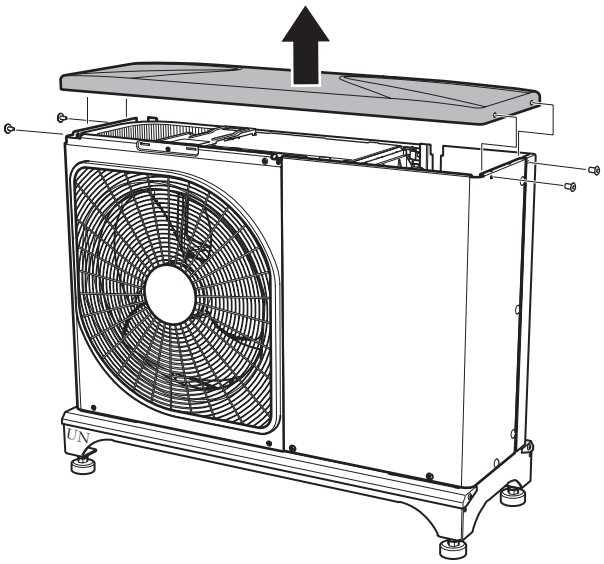


[1] Only applies to F2050-12/-16.

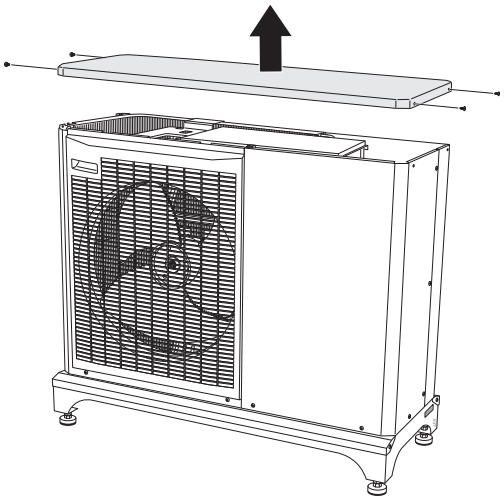
Dismantling panels

DISMANTLING TOP PANEL

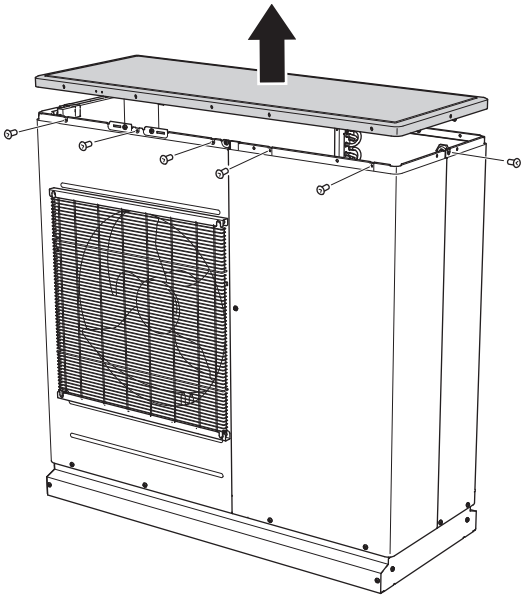
F2050-6



F2050-10

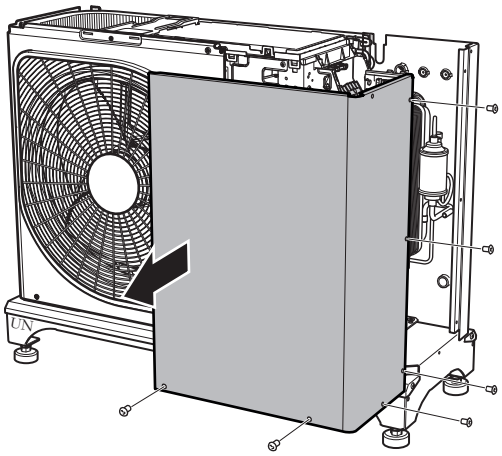


F2050-12/-16

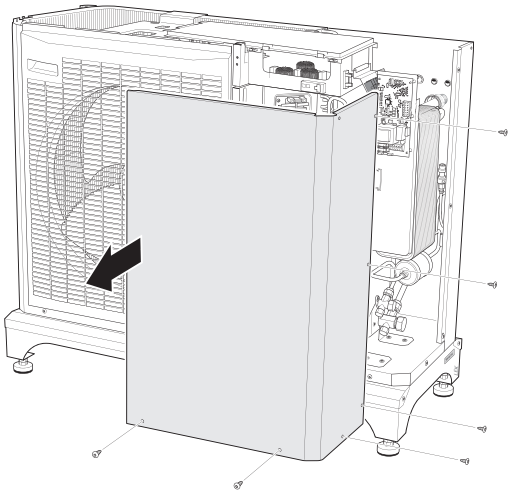


REMOVING THE FRONT PANEL

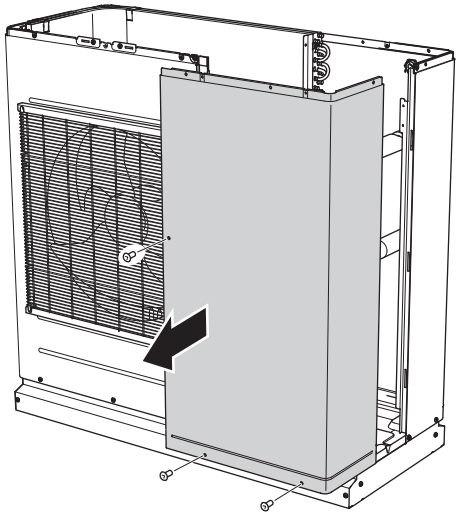
F2050-6



F2050-10



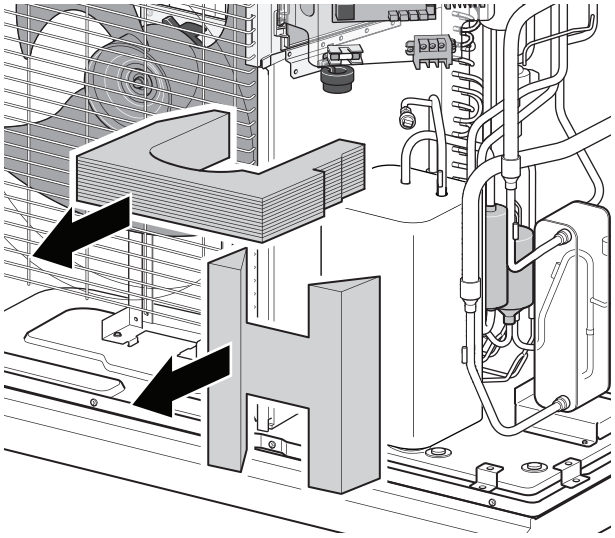
F2050-12/-16



Dismantling cardboard box

F2050-12/-16

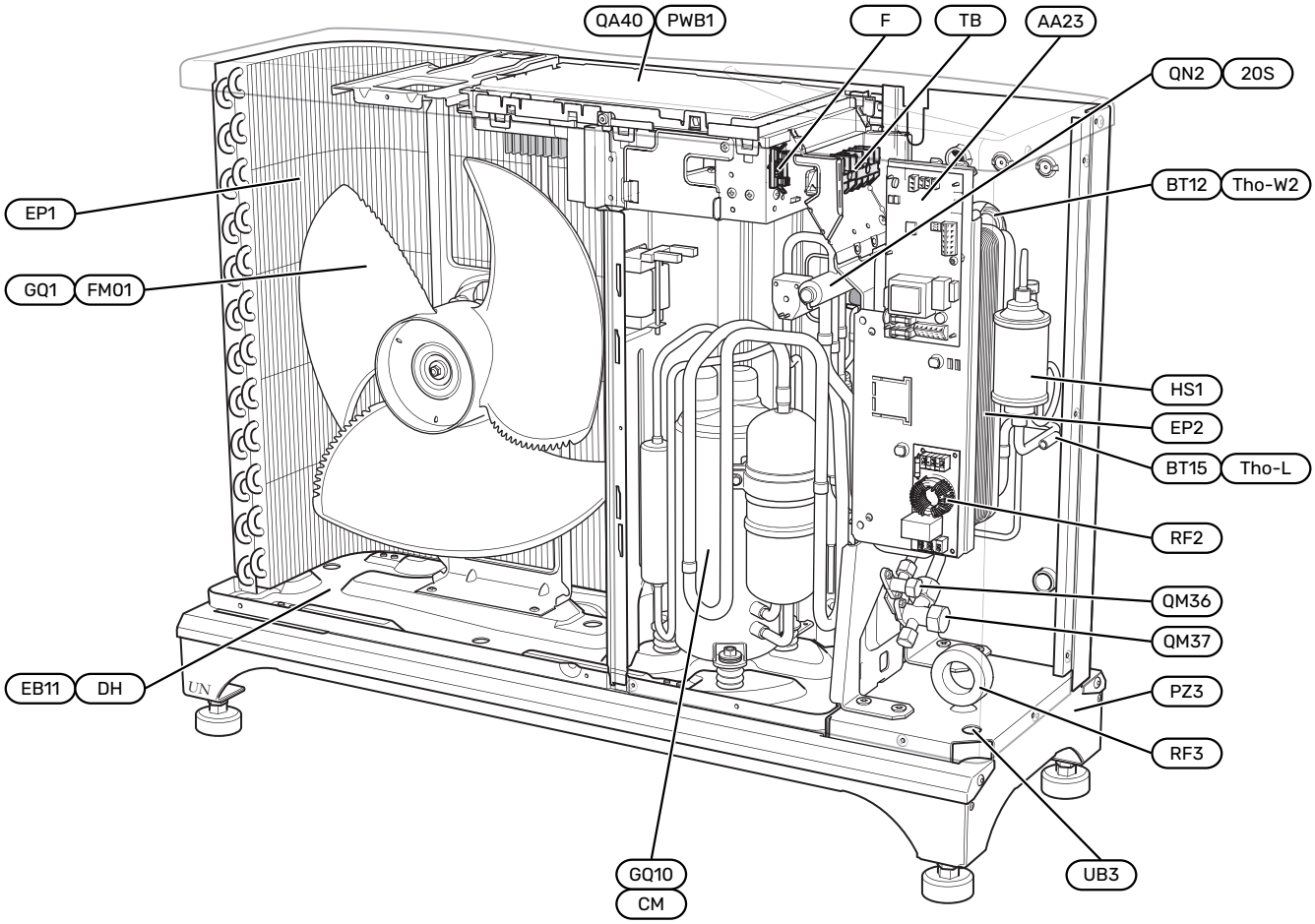
Remove the pieces of cardboard that are inside F2050-12/-16.

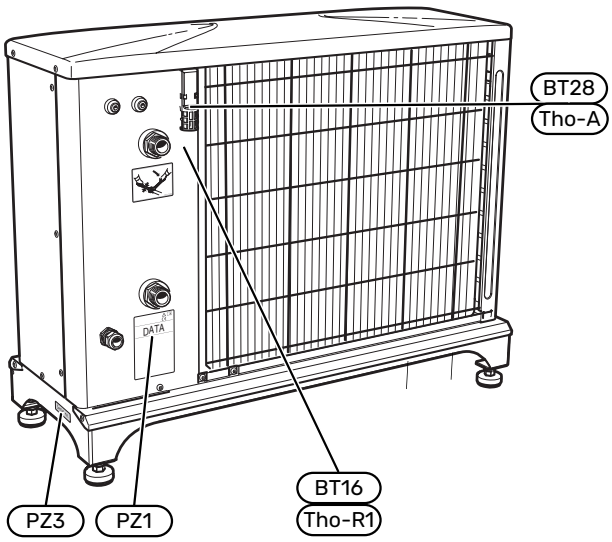


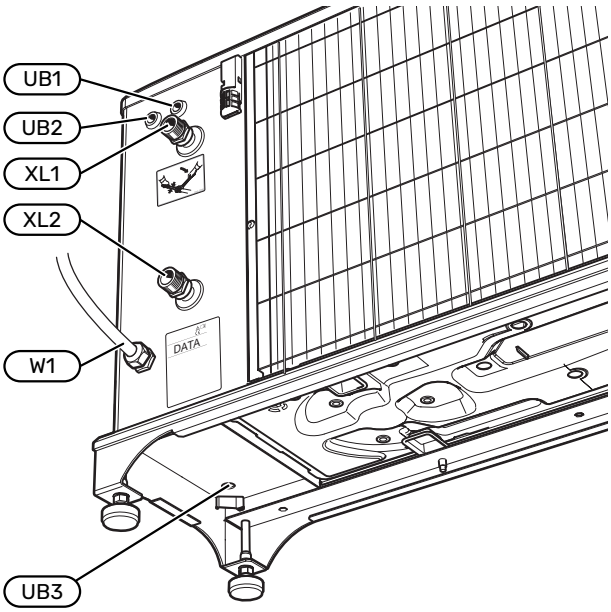
The heat pump design

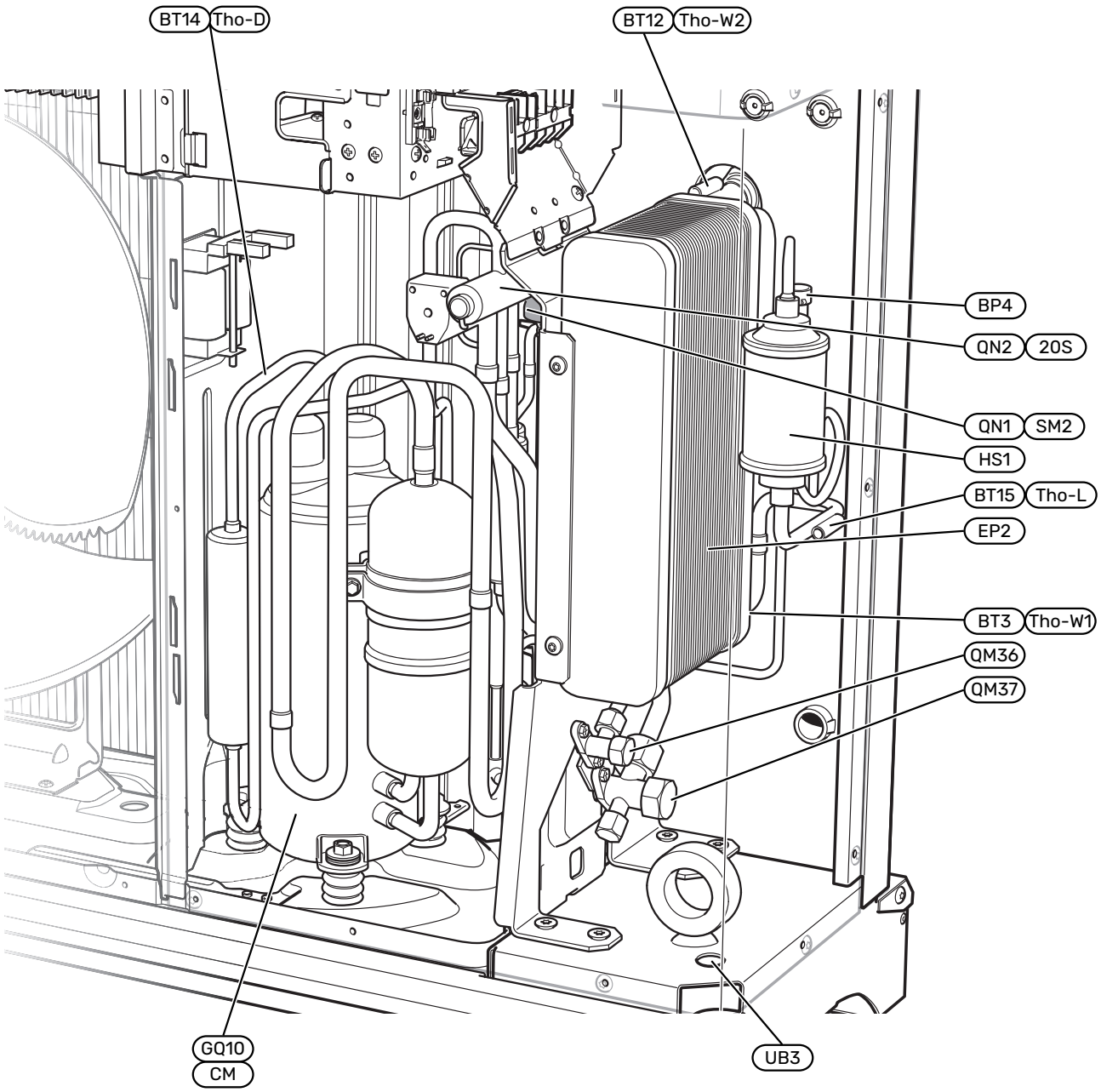
General

F2050-6

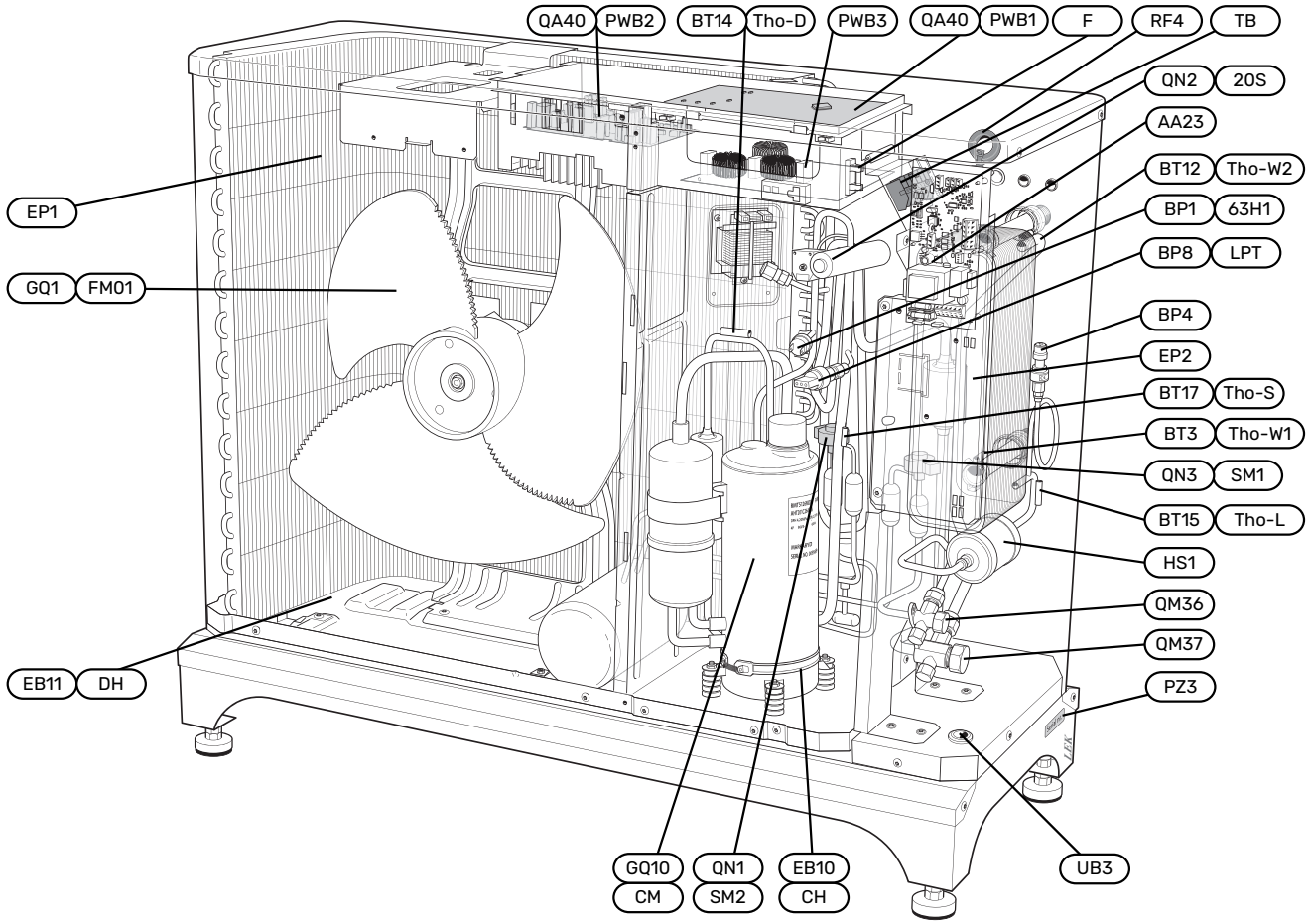







BT14
Tho-D
BT12
Tho-W2
BP4
QN2
20S
QN1
SM2
HS1
BT15
Tho-L
EP2
BT3
Tho-W1
QM36
QM37
GQ10
CM
UB3

F2050-10


QA40
PWB2
BT14
Tho-D
PWB3
QA40
PWB1
F
RF4
TB
QN2
20S
AA23
BT12
Tho-W2
BP1
63H1
BP8
LPT
BP4
EP2
BT17
Tho-S
BT3
Tho-W1
QN3
SM1
BT15
Tho-L
HS1
QM36
QM37
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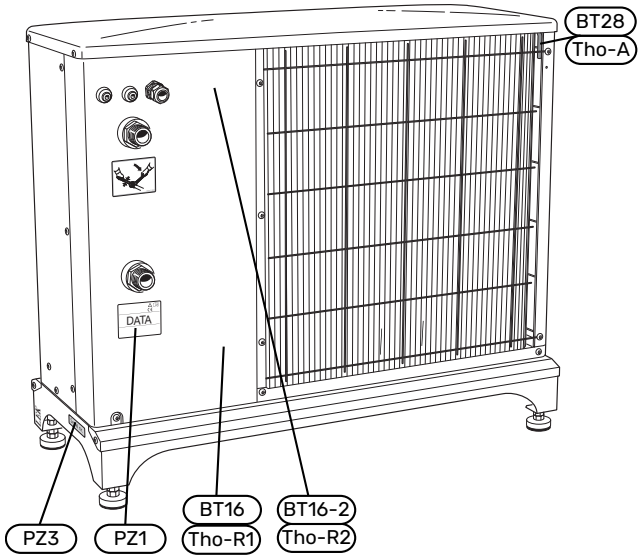
SM2
EB10
CH
UB3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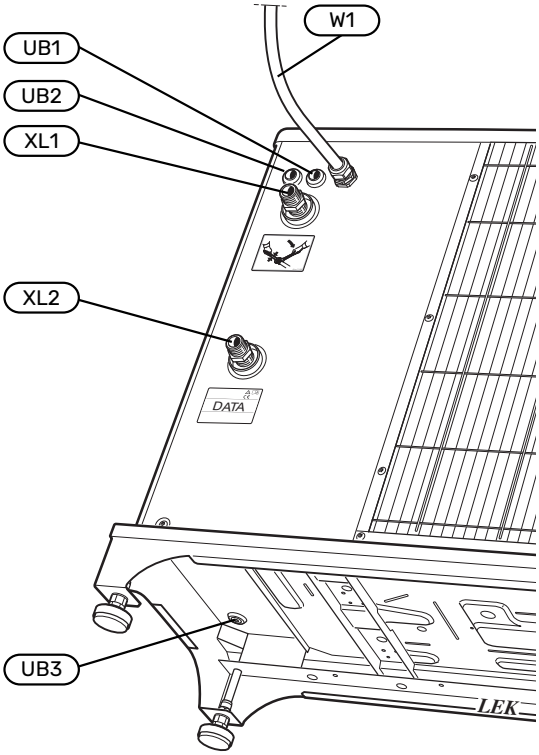
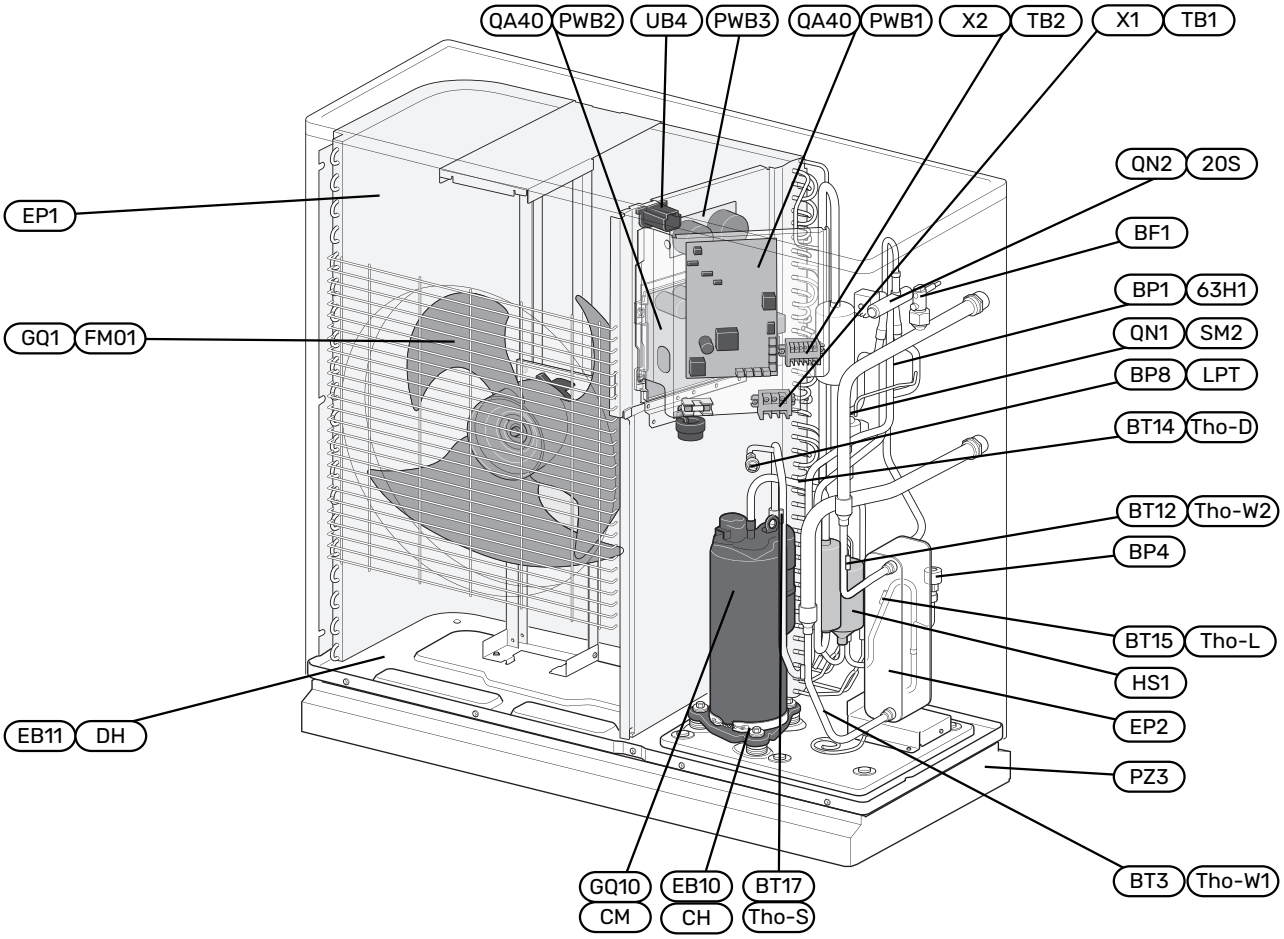
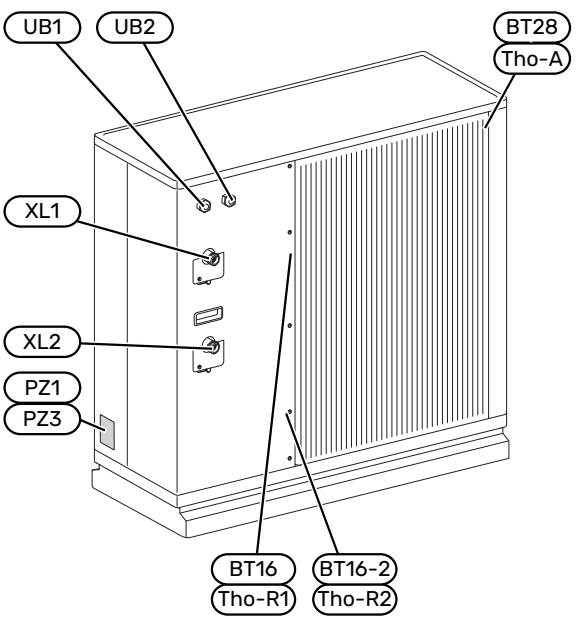
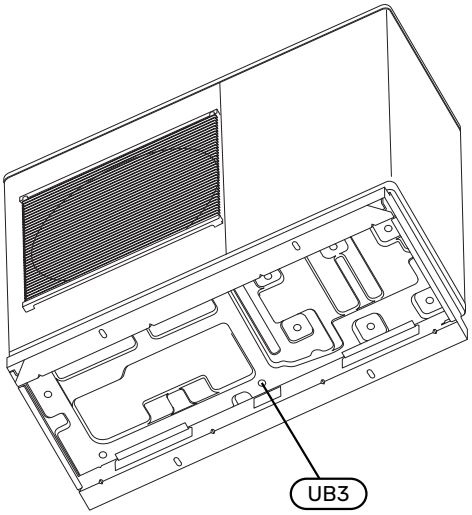
DATA
PZ3
PZ1
BT16
Tho-R1
BT16-2
Tho-R2


W1
UB1
UB2
XL1
XL2
DATA
UB3
LEK

F2050-12 / -16


QA40
PWB2
UB4
PWB3
QA40
PWB1
X2
TB2
X1
TB1
EP1
GQ1
FM01
EB11
DH
QN2
20S
BF1
BP1
63H1
QN1
SM2
BP8
LPT
BT14
Tho-D
BT12
Tho-W2
BP4
BT15
Tho-L
HS1
EP2
PZ3
BT3
Tho-W1
GQ10
CM
EB10
CH
BT17
Tho-S


UB1
UB2
BT28
Tho-A
XL1
XL2
PZ1
PZ3
BT16
Tho-R1
BT16-2
Tho-R2


UB3

Pipe connections

XL1	Heating medium connection, supply (out from F2050)
XL2	Heating medium connection, return (to F2050)

Sensors etc.

BP1 (63H1)	High pressure pressostat
BP4	Pressure sensor, condenser
BP8 (LPT)	Low pressure transmitter
BT3 (Tho-W1)	Return line sensor
BT12 (Tho-W2)	Condenser sensor, supply line
BT14 (Tho-D)	Hot gas sensor
BT15 (Tho-L)	Fluid line sensor
BT16 (Tho-R1)	Evaporator sensor 1
BT16-2 (Tho-R2)	Evaporator sensor 2
BT17 (Tho-S)	Suction gas sensor
BT28 (Tho-A)	Ambient sensor

Electrical components

AA23	Communication board
EB10 (CH)	Compressor heater
EB11 (DH)	Drip tray heater
F	Main fuse compressor unit
GQ1 (FM01)	Fan
QA40 (PWB1)	Control board with inverter unit
QA40 (PWB2)	Inverter module
(PWB3)	Filter board
RF2	EMC filter for inverter
RF3	EMC filter for incoming supply
RF4	EMC filter for communication
(TB)	Terminal block, supply voltage and communication with board AA23
UB1	Cable gland, incoming supply
UB2	Cable grommet, communication
UB3	Cable gland, heating cable (EB14)
UB4	Cable grommet, fan
W1	Cable, incoming supply

Cooling components

EP1	Evaporator
EP2	Condenser
GQ10 (CM)	Compressor
HS1	Drying filter
QM36	Shut-off valve, liquid line
QM37	Shut-off valve, gas line
QN1 (SM2)	Expansion valve, heating and cooling
QN2 (20S)	4-way valve
QN3 (SM1)	Expansion valve, cooling

Miscellaneous

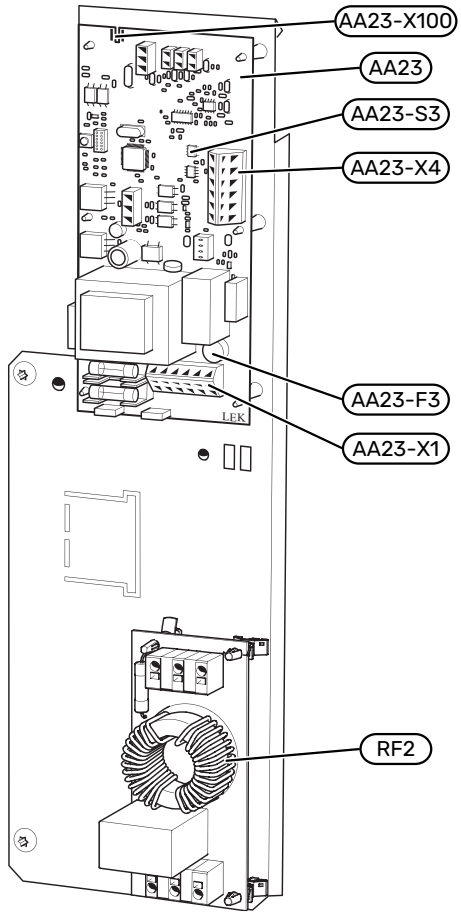
PZ1	Rating plate
PZ3	Serial number plate

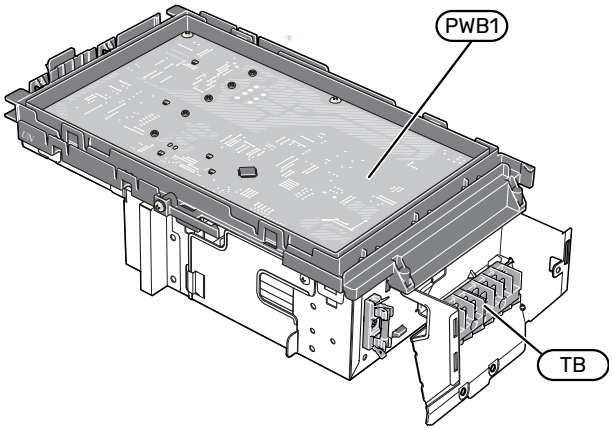
Designations according to standard EN 81346-2.

Designations within brackets according to the supplier's standard.

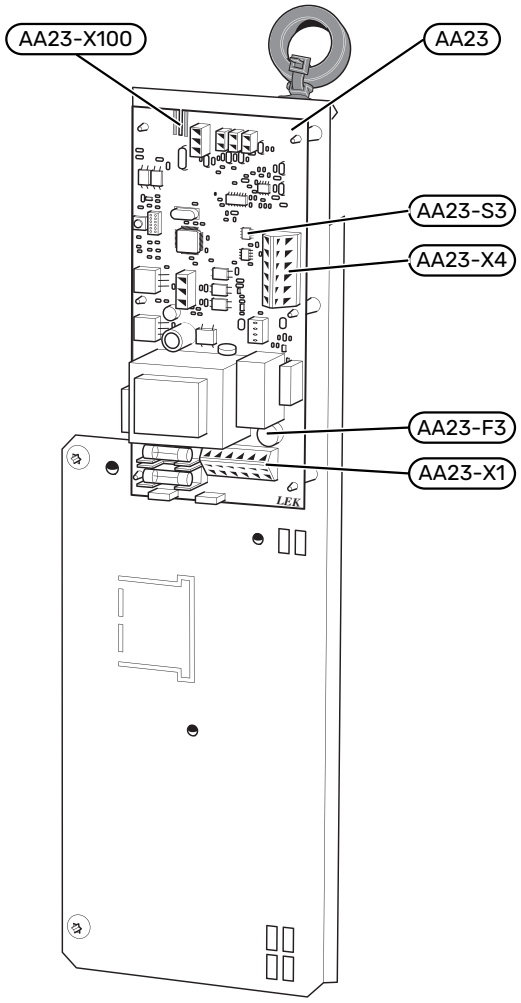
Electrical connection

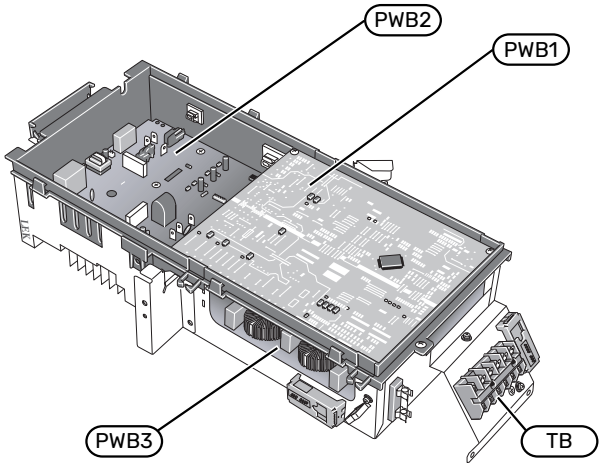
F2050-6



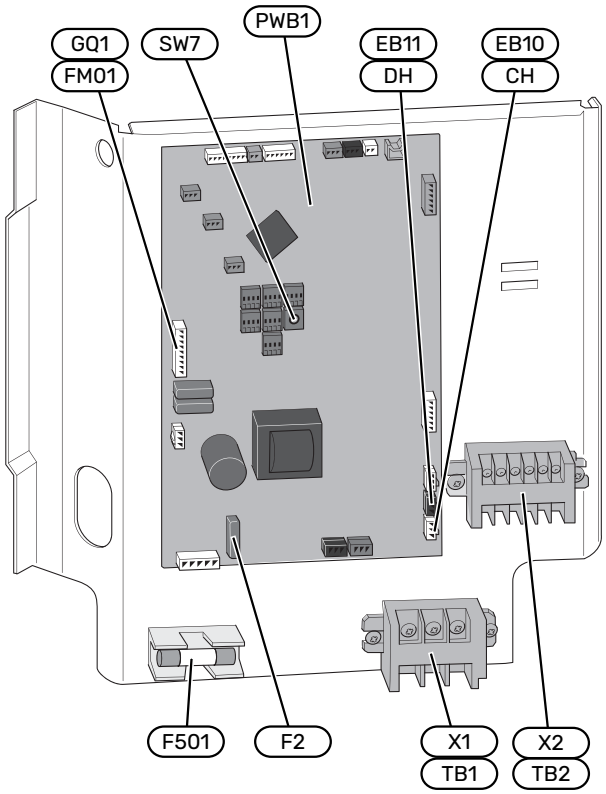


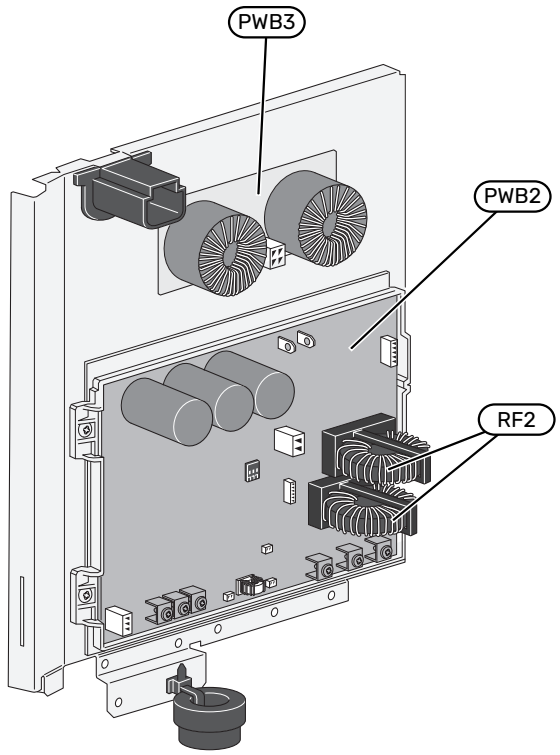
F2050-10





F2050-12/-16





Electrical components

AA23	Communication board	
	F3	Fuse for external heating cable (250 mA), max 45 W.
	S3	DIP switch, addressing of outdoor module
	X1	Terminal block, KVR
	X4	Terminal block, communication from indoor module
	X100	Communication with TB
(F501)	Fuse, fan, 2A	
(PWB1)	Control board	
	EB10 (CH)	Compressor heater, terminal block
	EB11 (DH)	Drip tray heater, terminal block
	F2	Fuse, 2A
	GQ1 (FM01)	Fan, terminal block
	SW7	DIP switch, addressing of outdoor module
(PWB2)	Inverter board	
	RF2	EMC-filter
(PWB3)	Filter board	
(TB)	Terminal block, supply voltage and communication with board AA23	
X1 (TB1)	Terminal block, power supply	
X2 (TB2)	Terminal block, communication with indoor unit	

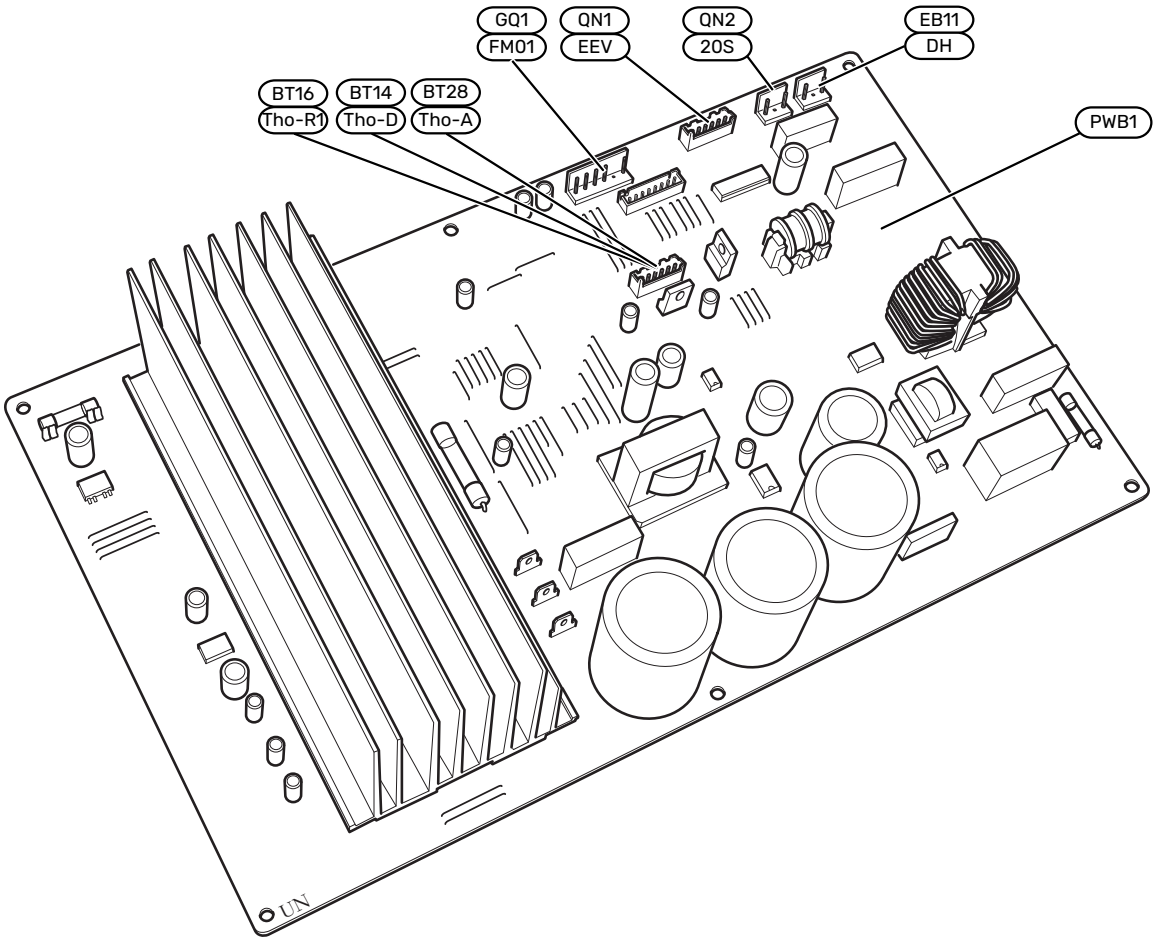
Designations according to standard EN 81346-2.

Designations within brackets according to the supplier's standard.

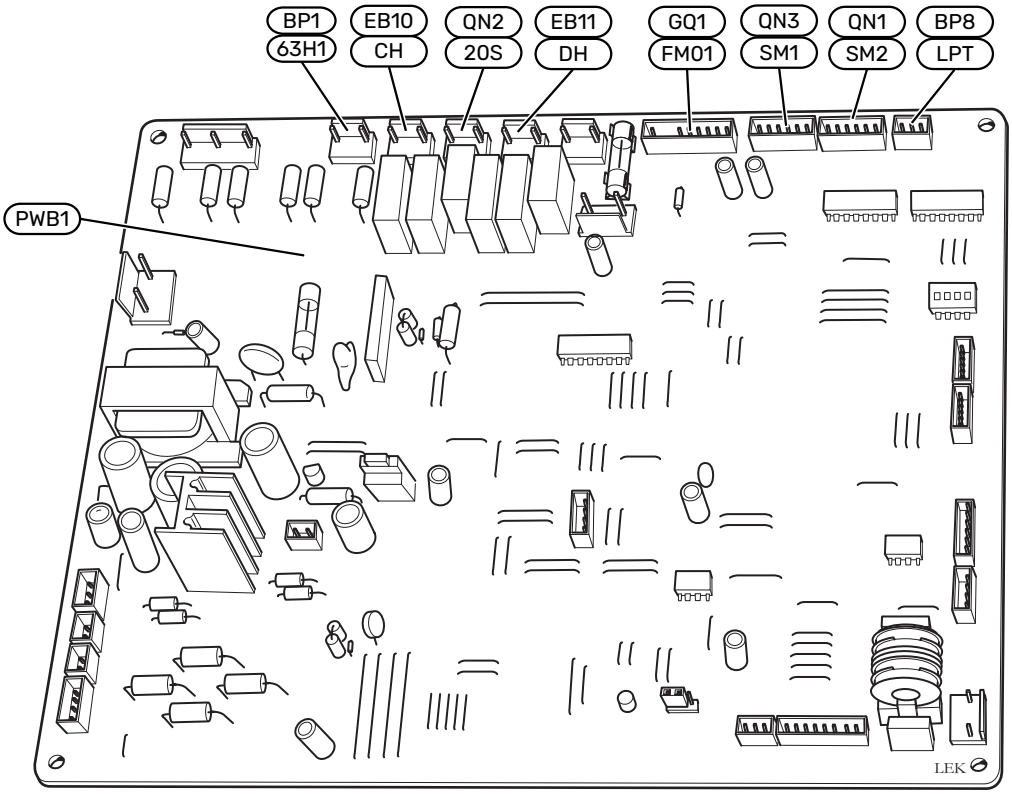
Sensor placement

CONNECTION ON CONTROL BOARD (PWB1)

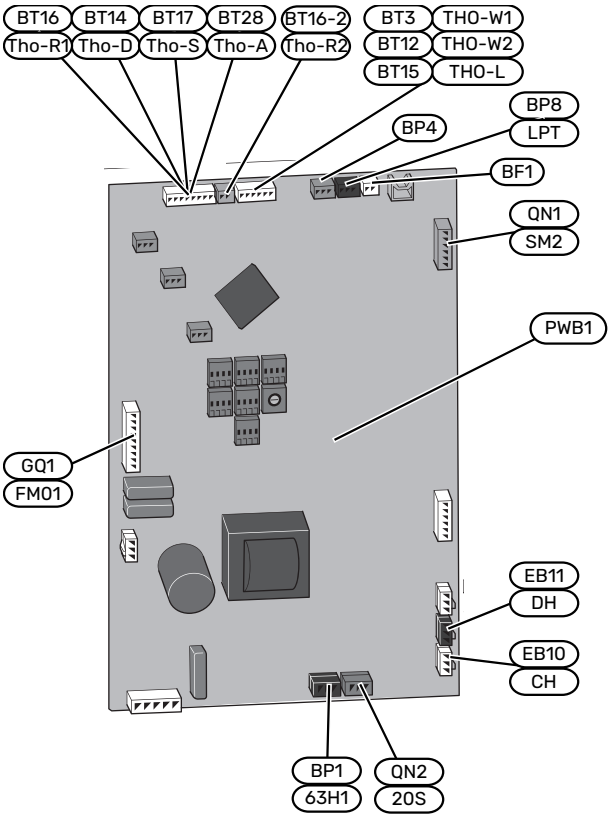
F2050-6



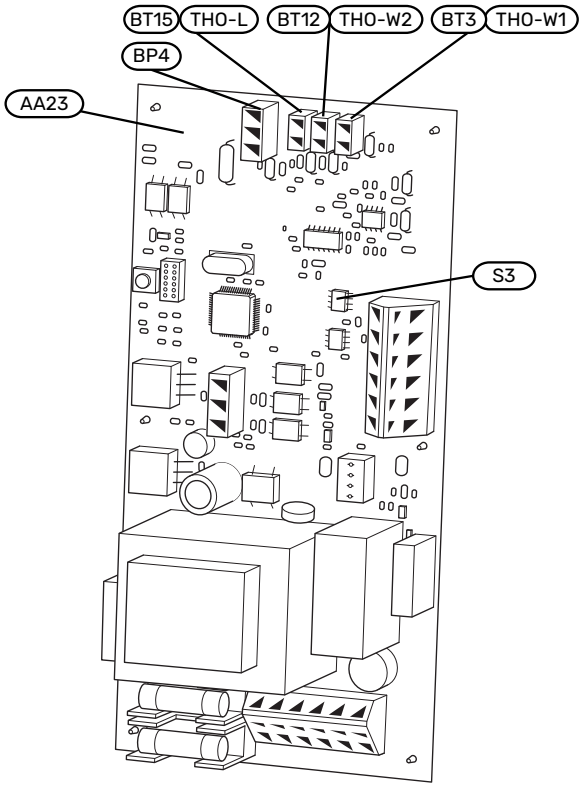
F2050-10



F2050-12 / -16

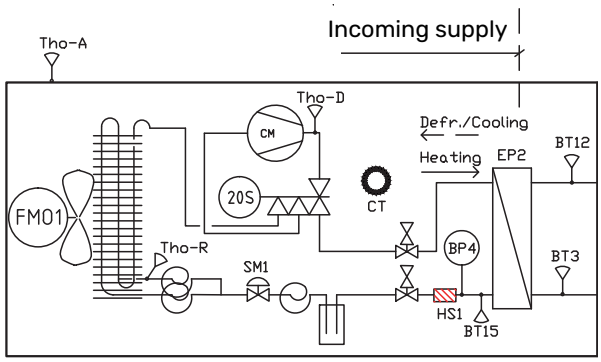


CONNECTION ON COMMUNICATION BOARD (AA23)

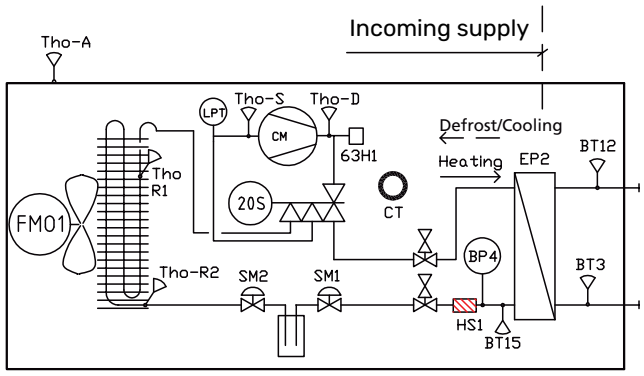


SENSOR PLACEMENT IN F2050

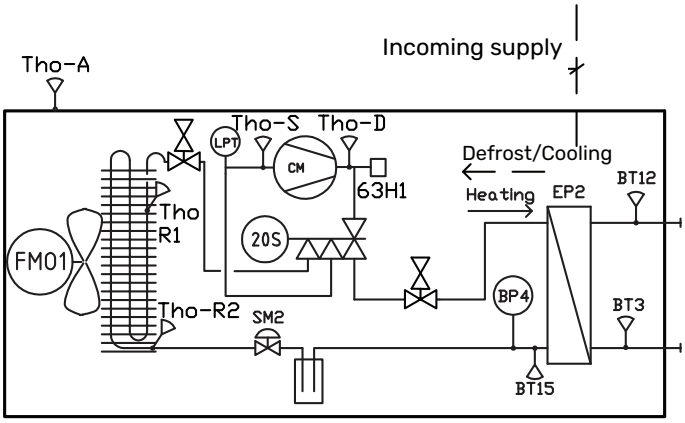
Outdoor module F2050-6



Outdoor module F2050-10



Outdoor unit F2050-12 / -16



AA23	Communication board	
	BP4	Pressure sensor, condenser
	S3	DIP switch, addressing of outdoor unit
	BT3 (Tho-W1)	Temperature sensor, heating medium return line
	BT12 (Tho-W2)	Temperature sensor, condenser supply line
	BT15 (Tho-L)	Temperature sensor, fluid pipe
PWB1	Control board	
	BE1 (CT)	Current sensor
	BP1 (63H1)	High pressure pressostat
	BP8 (LPT)	Low pressure transmitter
	BP4	Pressure sensor, condenser
	BT3 (Tho-W1)	Temperature sensor, heating medium return line
	BT12 (Tho-W2)	Temperature sensor, condenser supply line
	BT14 (Tho-D)	Temperature sensor, hot gas
	BT15 (Tho-L)	Temperature sensor, fluid pipe
	BT16 (Tho-R1)	Temperature sensor, heat exchanger, 1
	BT16-2 (Tho-R2)	Temperature sensor, heat exchanger, 2
	BT17 (Tho-S)	Temperature sensor, suction gas
	BT28 (Tho-A)	Temperature sensor, ambient
	EB10 (CH)	Compressor heater
	EB11 (DH)	Drip tray heater
	EP2	Condenser
	GQ1 (FM01)	Fan
	GQ10 (CM)	Compressor
	HS1	Drying filter
	QN1 (EEV)	Expansion valve
	QN1 (SM2)	Expansion valve, heating
	QN2 (20S)	4-way valve
	QN3 (SM1)	Expansion valve, cooling

Designations according to standard EN 81346-2.

Designations within brackets according to the supplier's standard.

Pipe connections

General

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

MINIMUM SYSTEM FLOWS

> **CAUTION!**
> An undersized climate system can result in damage to the product and lead to malfunctions.

Each climate system must be dimensioned individually to provide the recommended system flows.

The installation must be dimensioned to provide at least the minimum defrosting flow at 100 % circulation pump operation.

Air/water heat pump	Minimum flow during defrosting 100% circulation pump operation (l/s)	Minimum recommended pipe dimension (DN)	Minimum recommended pipe dimension (mm)
F2050-6	0.19	20	22
F2050-10			
F2050-12	0.29	20	22
F2050-16	0.39	25	28

F2050 can only operate up to a return temperature of about 55 °C and an outgoing temperature of about 58 °C from the heat pump.

F2050 is not equipped with shut-off valves on the heating medium side, rather these must be installed to facilitate any future servicing. The return temperature is limited by the return line sensor.

> **CAUTION!**
> This installation is subject to building regulation approval, notify the local Authority of intention to install.

> **CAUTION!**
> Use only manufacturer's recommended replacement parts.

HARD WATER AREAS

Normally, there should not normally be any problem installing F2050 in hard water areas, as the operating temperature is 50–60°C.

CLEANING THE CLIMATE SYSTEM

When the water heater and the climate system have been filled with water, F2050 must operate at maximum normal temperature for at least one hour. Thereafter the system must be drained of water and refilled.

Before installing the heat pump in an existing system, it is important that the system is properly flushed through.

Even if the heat pump is to be installed in a new system, the heat pump and system should be flushed.

> **CAUTION!**
> Ensure that cleaning agent has been removed from the entire system before adding inhibitor.

After flushing an inhibitor should be used for long-term anti-corrosion protection.

NIBE Energy Systems Limited recommends water treatments, supplied by Fernox, specifically designed for heat pumps.

WATER VOLUMES

When docking with F2050 free flow in the climate system is recommended for correct heat transfer. This can be achieved by use of a bypass valve. If free flow cannot be ensured, it is recommended that a buffer tank (NIBE UKV) is installed.

Following water volumes are recommended

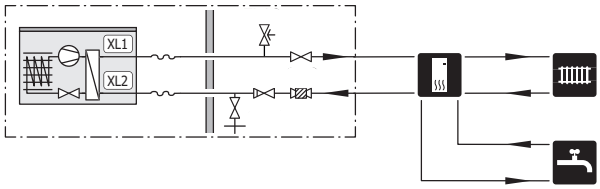
F2050	-6	-10
Minimum volume, climate system during heating/cooling	20 l	50 l
Minimum volume, climate system during under floor cooling	50 l	80 l

F2050	-12	-16
Minimum volume, climate system during heating/cooling	80 l	150 l
Minimum volume, climate system during under floor cooling	100 l	150 l

> **CAUTION!**
> The pipe installation must be flushed out before the heat pump is connected so debris cannot damage component parts.

SYSTEM DIAGRAM

System principles with hot water and heating system.



XL1 Heating medium connection, supply (out from F2050)
XL2 Heating medium connection, return (to F2050)

Symbol key

Symbol	Meaning
	Shut-off valve
	Tapping valve
	Non-return valve
	Circulation pump
	Expansion vessel
	Filterball
	Pressure gauge
	Safety valve
	Reversing valve/shunt
	Control module
	Domestic hot water
	Outdoor module
	Water heater
	Heating system

Pipe coupling heating medium circuit

You can find a list of compatible products in the section "Compatible indoor modules and control modules".

NOTE!

There is a difference between connection to a control module compared with connection to an indoor module.

See the Installer Manual for the indoor module/control module.

Vent the heat pump by the "heating medium supply" connection (XL1) using the venting nipple on the enclosed flexible hose.

Install as follows:

- expansion vessel
- pressure gauge
- safety valves
- drain valve

  For draining the heat pump during prolonged power failures.
- non-return valve

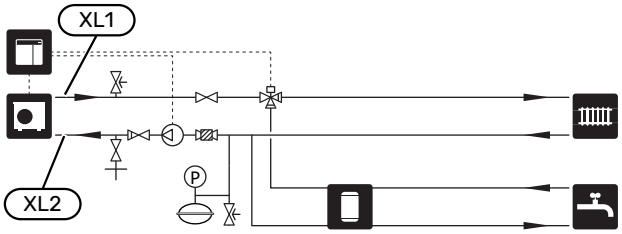
  Installations with only one heat pump: a non-return valve is only required in those cases where the placement of the products in relation to each other can cause self-circulation.

  Cascade installations: each heat pump must be fitted with a non-return valve.
- charge pump
- shut-off valve

  To facilitate any future servicing.
- enclosed filterball (QZ2)

  Installed before connection "heating medium return" (XL2) (the lower connection) on the vacuum pump.
- reversing valve.

  When connecting to the control module, and if the system is to be able to work with both the climate system and the hot water heater.



The image shows connection to the control module.

Before installing the heat pump in an existing system, it is important that the system is properly flushed through.

Even if the heat pump is to be installed in a new system, the heat pump and system should be flushed.

CAUTION!

Ensure that cleaning agent has been removed from the entire system before adding inhibitor.

After flushing an inhibitor should be used for long-term anti-corrosion protection.

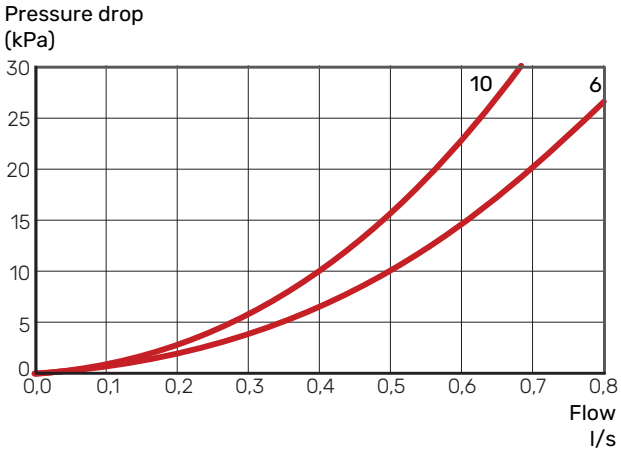
NIBE Energy Systems Limited recommends water treatments (supplied by e.g. Fernox and Sentinel) specifically designed for heat pumps.

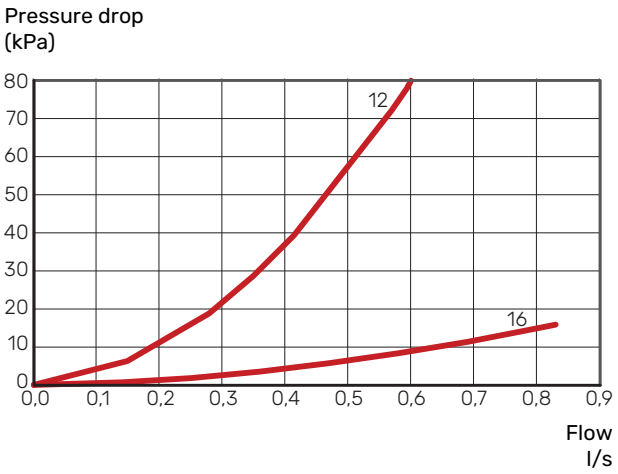
CHARGE PUMP

The charge pump (not included in the product) is powered and controlled from the indoor module/control module. It has a built-in frost protection function and, for this reason, must not be switched off when there is a risk of freezing.

At outdoor temperatures below +2 °C, the charge pump runs periodically, to prevent the water from freezing in the charge circuit. The function also protects against excess temperatures in the charge circuit.

PRESSURE DROP, HEATING MEDIUM SIDE

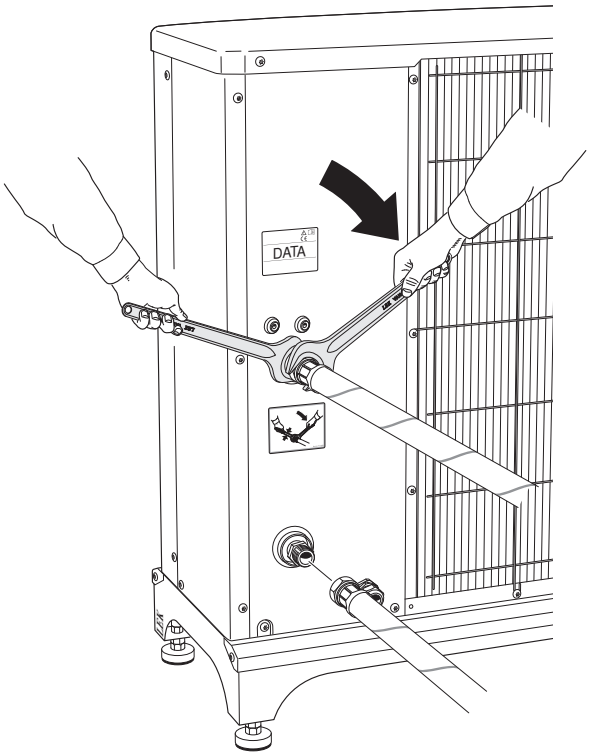


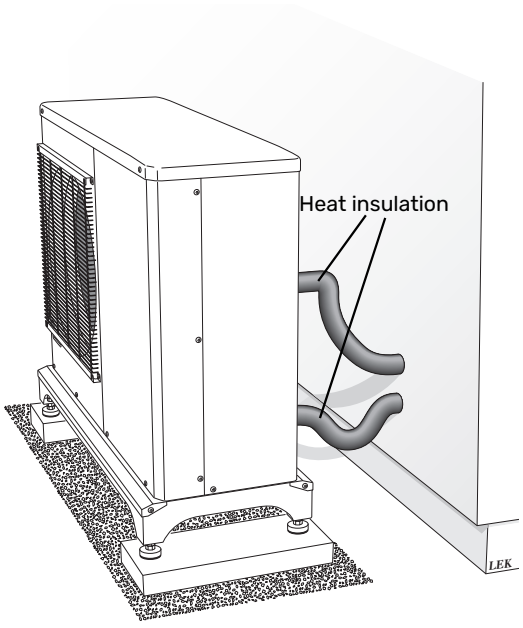


PIPE CONNECTIONS FLEX HOSE

All outdoor pipes must be insulated with at least 19 mm thick pipe insulation.

The supplied flexible hoses act as vibration dampers. The flexible pipes are fitted so an elbow is created, thus acting as vibration damping.





Installation alternative

F2050 can be installed with indoor unit or control module.

Ffor all of the installation options, the necessary safety equipment must be installed in accordance with current regulations.

See nibe.eu for more installation options.

CONNECTING ACCESSORIES

Instructions for connecting accessories can be found in the installation instructions provided for each accessory. See section Accessories for a list of the accessories that can be used with F2050.

Electrical connections

General

- Electrical installation and wiring must be carried out in accordance with national provisions.
- Prior to insulation testing the house wiring, disconnect the air/water heat pump installation.
- If a miniature circuit breaker is used, this must have at least triggering characteristic "C". See section "Technical specifications" for fuse size.
- F2050 must be installed via an isolator switch. The cable area has to be dimensioned based on the fuse rating used.
- F2050 must be fitted with a residual current device. If the property is equipped with a residual current device, F2050 must be equipped with a separate one.
- The RCD should have a nominal tripping current of no more than 30 mA. The incoming supply must be 230V~ 50Hz via an electrical distribution unit with fuses.
- The routing of cables for heavy current and signals should be made out through the cable glands on the heat pump's right-hand side, seen from the front.
- The communication cable must be a screened cable with three conductors.
- To prevent interference, communication cables to external connections must not be laid in the vicinity of high voltage cables.
- Connect the charge pump to the control module. See where the charge pump is to be connected in the Installer Manual for your control module.

CAUTION!

Electrical installation and any servicing must be carried out under the supervision of a qualified electrician. Disconnect the current using the circuit breaker before carrying out any servicing.

CAUTION!

Check the connections, main voltage and phase voltage before the product is started, to prevent damage to the heat pump electronics.

CAUTION!

The live external control must be taken into consideration when connecting.

CAUTION!

If the supply cable is damaged, only NIBE, its service representative or similar authorised person may replace it to prevent any danger and damage.

CAUTION!

Do not start the system before filling up with water. Components in the system could be damaged.

Accessibility, electrical connection

See section "Dismantling panels".

Connections

POWER CONNECTION

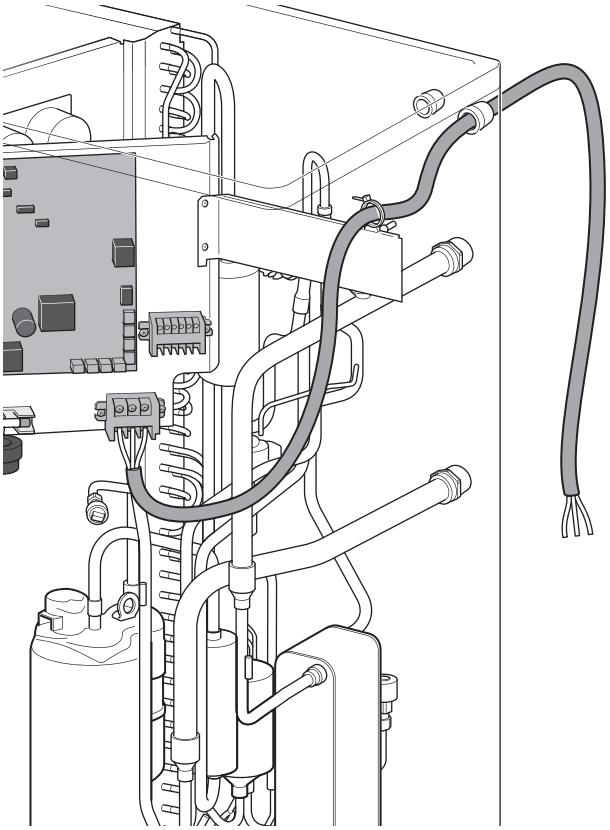
F2050-6 and F2050-10

Incoming power supply cable (W1) is enclosed and connected at the factory to terminal block X1 in F2050-6 and F2050-10. Outside the heat pump there is approx.1.8 m of cable available.

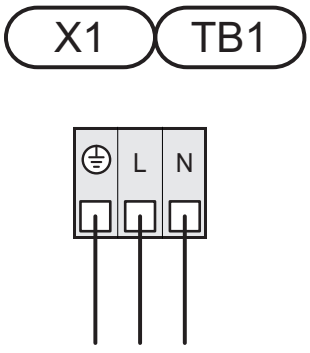
F2050-12 and F2050-16

Incoming power supply cable (W1) is enclosed for F2050-12 and F2050-16.

1. Select the end of the power supply cable that has welded end tips.
2. Insert the power supply cable through the cable grommet on the rear and on through the cable holder.



3. Connect the power supply cable to the terminal block X1 (TB1). Tightening torque 1 Nm. (Earth = yellow/green, L = brown, N = blue)



AMBIENT TEMPERATURE SENSOR

An ambient temperature sensor BT28 (Tho-A) is located on the rear of F2050.

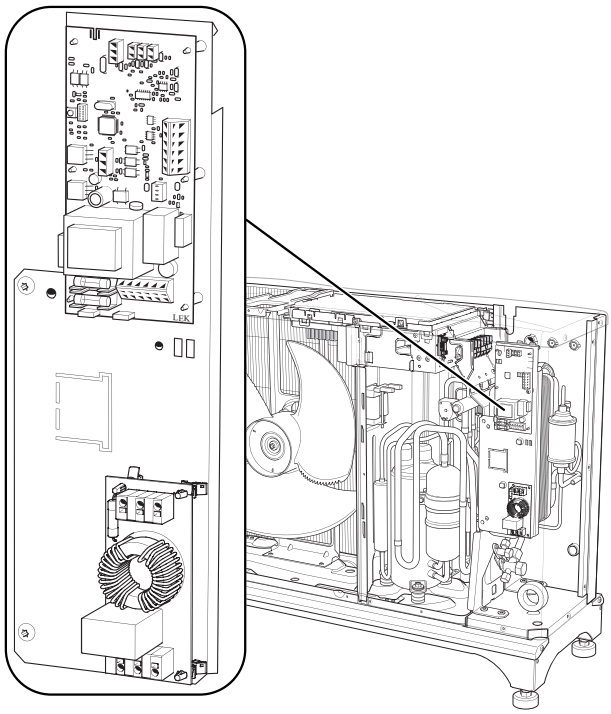
COMMUNICATION

For connection of indoor module / control module, see relevant manual on nibe.co.uk.

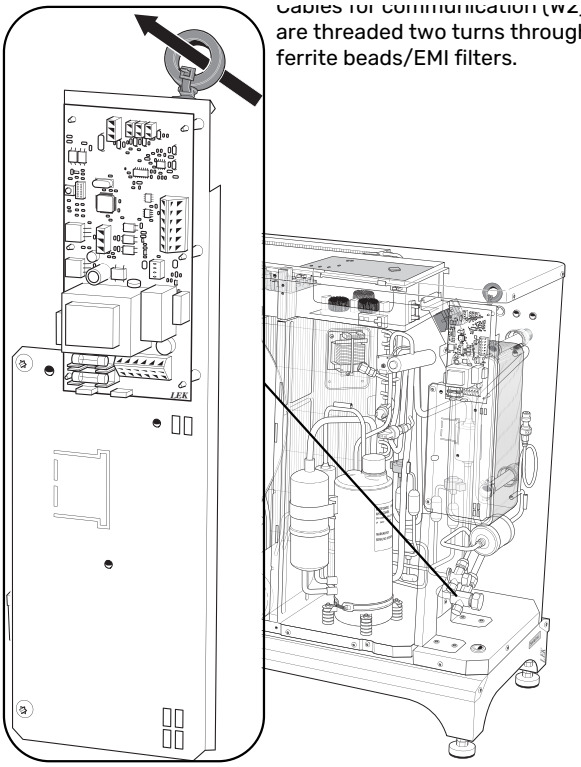
Cable routing, communication F2050-6/-10

Communication cable (provided by installer) must be routed through cable grommet, communication (UB2), connected to terminal block AA23-X4 and secured with two cable ties.

F2050-6



F2050-10

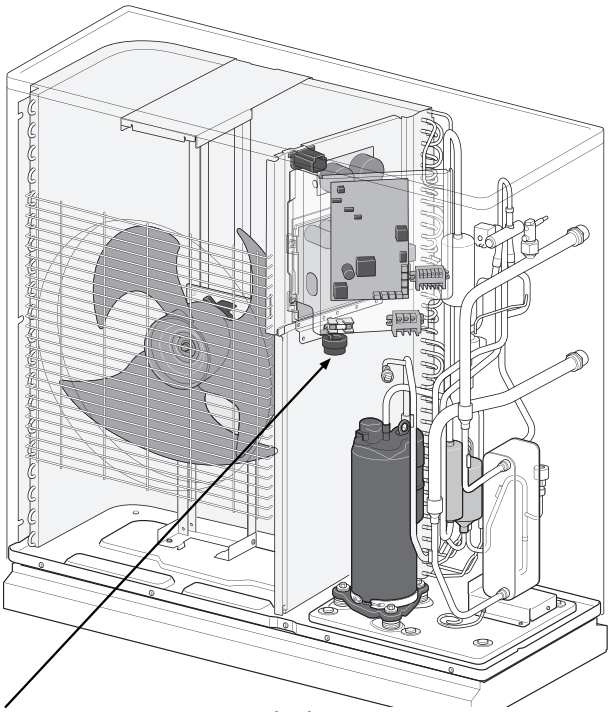


Cables for communication (W2) are threaded two turns through ferrite beads/EMI filters.

Cable routing, communication F2050-12/-16

Communication cable (provided by installer) must be routed through cable grommet, communication (UB2), connected to terminal block X2(TB):4-6 and secured with two cable ties.

F2050-12 / -16



Cables for communication (W2) are threaded two turns through ferrite beads/EMI filters.

Software version

To allow F2050 to communicate with indoor unit/control module, you may need to update to a more recent software version in the indoor unit/control module.

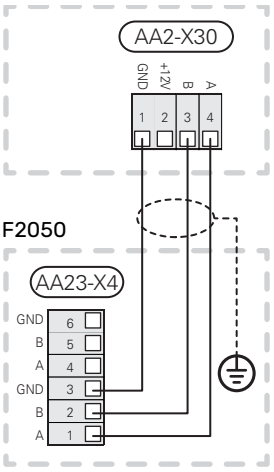
Connection F2050-6/-10 to indoor unit

Communication cable (W2) is inserted from the rear through "cable grommet, communication" (UB2).

F2050 can communicate with indoor units, by connecting the indoor unit to the terminal block for communication (AA23-X4:1–3).

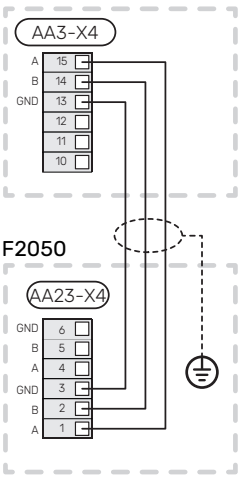
VVM S

Indoor module



VVM

Indoor module



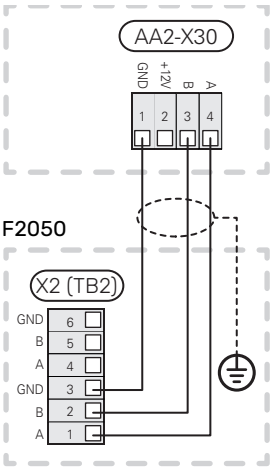
Connection F2050-12/-16 to indoor unit

Communication cable (W2) is inserted from the rear through "cable grommet, communication" (UB2).

F2050 can communicate with indoor units, by connecting the indoor unit to the terminal block for communication (X2(TB2):1-3).

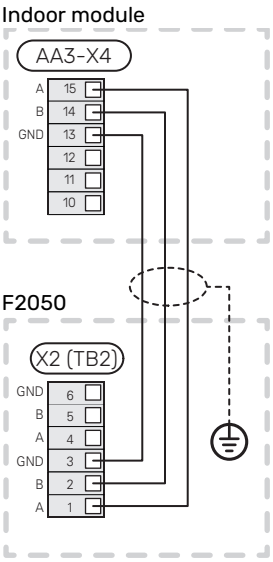
VVM S

Indoor module



VVM

Indoor module



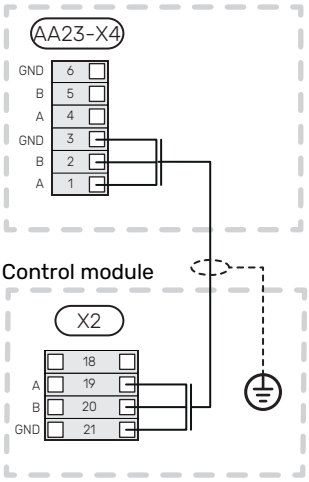
Connection F2050-6/-10 to control module

SMO 20

F2050 can communicate with control module (SMO 20), by connecting the terminal block for communication (AA23-X4:1, 2, 3) in F2050 to the terminal block for communication in SMO 20, X2-19(A), -20(B), -21(GND).

Stripped length of conductor is 6 mm.

F2050



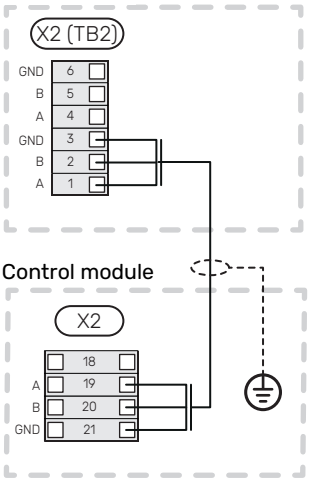
Connection F2050-12/-16 to control module

SMO 20

F2050 can communicate with control module (SMO 20), by connecting the terminal block for communication (X2(TB2):1-3) in F2050 to the terminal block for communication in SMO 20, X2-19(A), -20(B), -21(GND).

Stripped length of conductor is 6 mm.

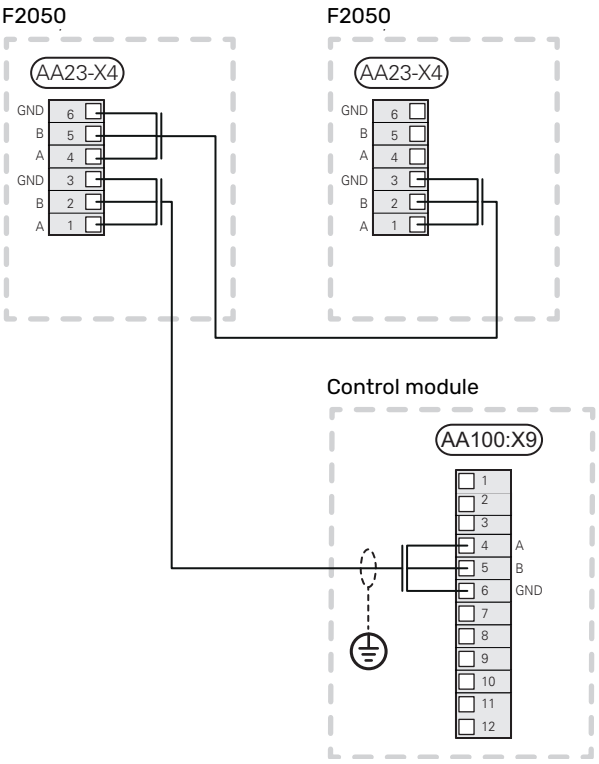
F2050



Cascade connection

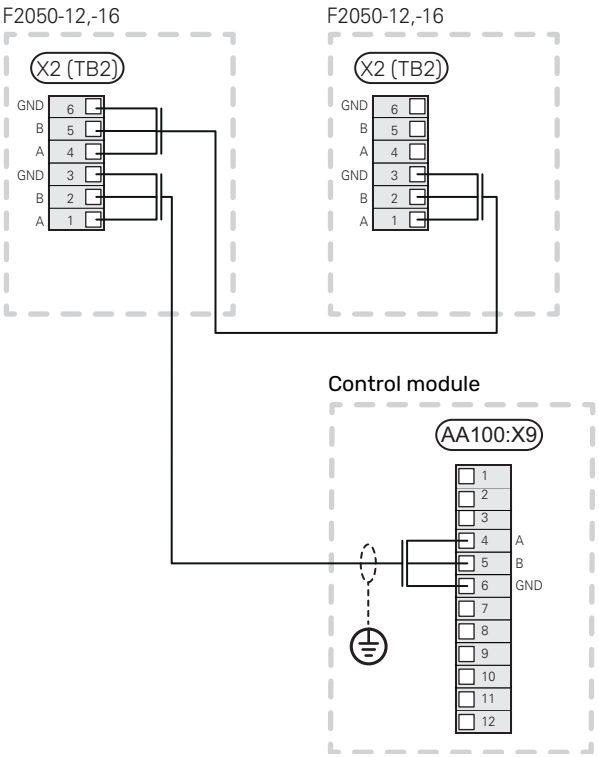
F2050-6/-10 and control module

F2050 (one or more) can communicate with control module (SMO S40), by connecting the terminal block for communication (AA23-X4:1, 2, 3) in F2050 to the terminal block for communication in SMO S40, AA100:X9-4(A), -5(B), -6(GND).



F2050-12/-16 and control module

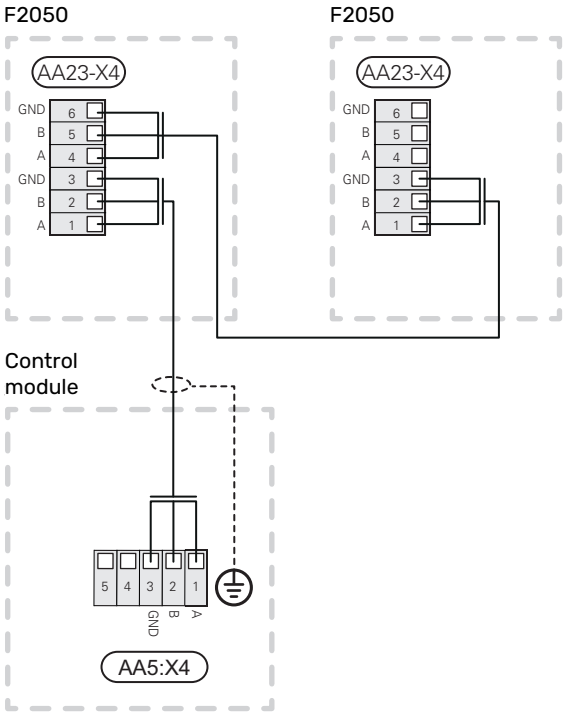
F2050 (one or more) can communicate with control module (SMO S40), by connecting the terminal block for communication (X2(TB2):1, 2 ,3) in F2050 to the terminal block for communication in SMO S40, AA100:X9-4(A), -5(B), -6(GND).



F2050-6/-10 and control module

F2050 (one or more) can communicate with control module (SMO 40), by connecting the terminal block for communication (AA23-X4:1, 2, 3) in F2050 to the terminal block for communication in SMO 40, AA5:X4-1(A), -2(B), -3(GND).

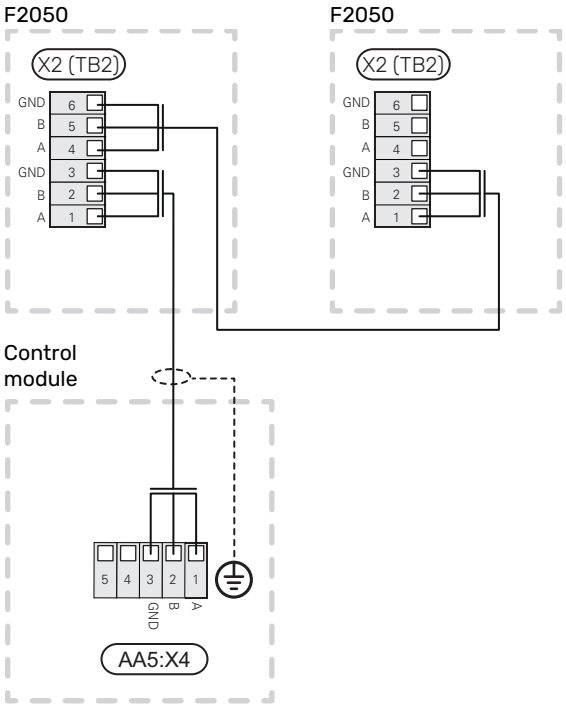
Stripped length of conductor is 6 mm.



F2050-12/-16 and control module

F2050 (one or more) can communicate with control module (SMO 40), by connecting the terminal block for communication (X2(TB2):1, 2 ,3) in F2050 to the terminal block for communication in SMO 40, AA5:X4-1(A), -2(B), -3(GND).

Stripped length of conductor is 6 mm.



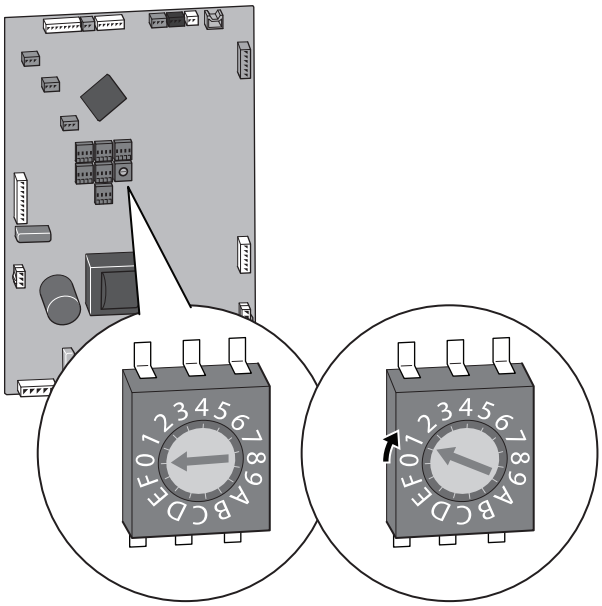
Addressing for cascade connection F2050-6/-10

On the communication board (AA23-S3), the communication address is selected for F2050 to the control module. The default address for F2050 is **1**. In a cascade connection, all F2050 must have a unique address. The address is coded in binary.

Address	S3:1	S3:2	S3:3
1	OFF	OFF	OFF
2	On	OFF	OFF
3	OFF	On	OFF
4	On	On	OFF
5	OFF	OFF	On
6	On	OFF	On
7	OFF	On	On
8	On	On	On

Addressing for cascade connection F2050-12/-16

On the control board (PWB1), there is a switch where the communication address for F2050 to the control module is selected. The default address for F2050 is **0**. In a cascade connection, all F2050 must have a unique address.



Turn the switch on the control board (PWB1) and set the desired value, see table. Heat pump 1 is set to "0" and heat pump 2 is set to "1", and so on.

Air/water heat pump	PWB1:SW7
1 (EB101)	0 (Default)
2 (EB102)	1
3 (EB103)	2
4 (EB104)	3
5 (EB105)	4
6 (EB106)	5
7 (EB107)	6
8 (EB108)	7

Commissioning and adjusting

Preparations

- Before commissioning, check that the charge circuit and climate system are filled and well vented.
- Check the pipe system for leaks.

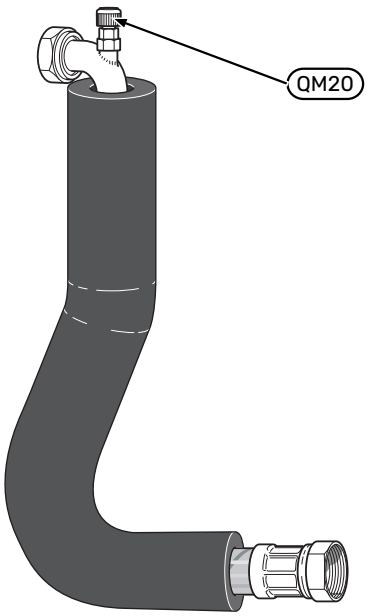
> **CAUTION!**
>
> Do not start F2050 if there is a risk that the water in the system has frozen.

> **CAUTION!**
>
> At the time of commissioning, complete all relevant sections of the Benchmark Checklist located at the back of this document.
>
> Completion of the Benchmark Checklist is a condition of warranty. For full terms and conditions of warranty, please see our website nibe.co.uk.

Filling and venting

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 (QM20) on the enclosed flexible hose and possibly the circulation pump.



Compressor heater F2050-10

F2050-10 is equipped with a compressor heater that heats the compressor before start-up and when the compressor is cold.

> **CAUTION!**
>
> The compressor heater must have been connected for 6 – 8 hours before the first start, see the section “Start-up and inspection” in the Installer Manual for the indoor unit.

Start-up and inspection

1. The compressor heater (CH) 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 communication cable.
2. F2050 must be given an address, if it is to have an address other than 1 or 0. See section "Addressing for cascade connection F2050-6/-10"/"Addressing for cascade connection F2050-12/-16".
3. The communication cable on the terminal block for communication (AA23-X4) in F2050-6/-10 or (X2(TB2)) in F2050-12/-16 must *not* be connected.
4. Turn the isolator switch on.
5. Ensure that the F2050 is connected to the power source.
6. After 6 – 8 hours, connect the communication cable (W2) to the terminal block for communication (AA23-X4) in F2050-6/-10 or (X2(TB2)) in F2050-12/-16.
7. If necessary, restart the indoor module. Follow the instructions for "Start-up and inspection" in the Installer Manual for the indoor module.

The heat pump starts 30 minutes after the outdoor unit is powered up and the communication cable (W2) is connected, if necessary.

If scheduled *silent operation*is required, it must be scheduled in the indoor module or the control module.

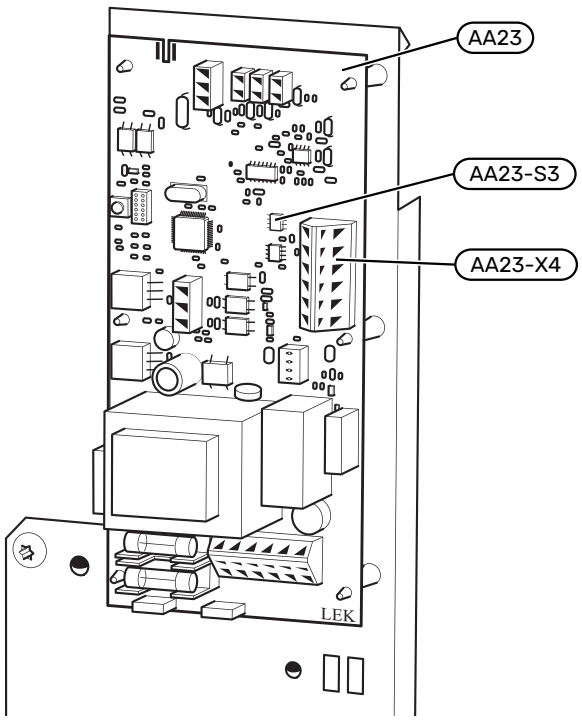
CAUTION!

Do not start any electrical work until at least two minutes after cutting the power.

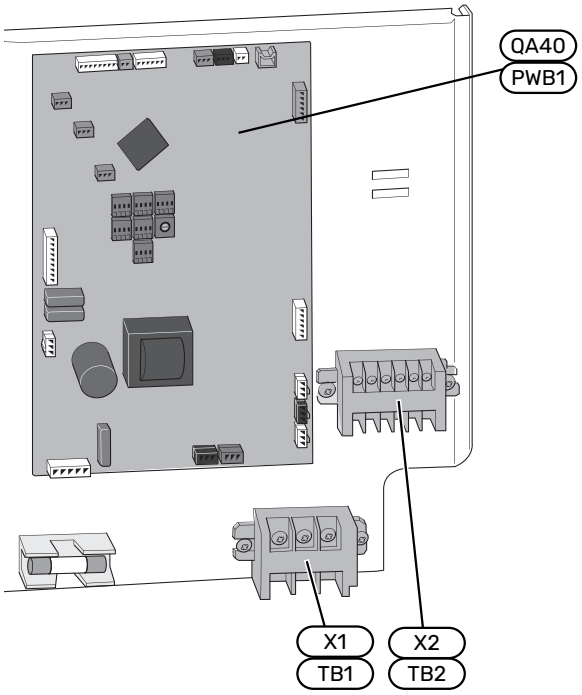
NOTE!

Silent mode should only be scheduled periodically because the maximum output is limited to approx. the nominal values.

F2050-6/-10



F2050-12/-16



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

Instructions for adjusting hot water charging are in the Installer Manual for the relevant indoor module. See the sections "Compatible indoor modules and control modules" and "Accessories" for the list of the indoor modules / control modules and accessories that can be connected to F2050.

Control - Heat pump EB101

S-series – indoor module / control module

These settings are made on the display on the indoor module/control module.

MENU 7.3.2 - INSTALLED HEAT PUMP

Here, you make specific settings for the installed heat pump.

MENU 7.3.2.1 - HEAT PUMP SETTINGS

Here, you make settings that are specific for the installed heat pumps.

Cooling permitted
Alternative: on/off

Silent mode permitted
Alternative: on/off

Max. frequency 1
Setting range: 25 – 120 Hz

Max. frequency 2
Setting range: 25 – 120 Hz

Compressor phase
Setting range F2050 1 x 230 V: L1, L2, L3

Detect compressor phase
Alternative F2050 1 x 230 V: on/off

Current limit
Alternative F2050 1 x 230 V: on/off

Max. current
Setting range F2050 1 x 230 V: 6 – 32 A

Stop temperature compressor
Setting range -20 – -2 °C

BlockFreq 1 and 2
Setting range, heating: 25 – 120 Hz

Setting range, cooling: 25 – 120 Hz

Cooling permitted: Here, you can set whether the cooling function will be activated for the outdoor unit.

Silent mode permitted: Here, you set whether silent mode will be activated for the heat pump. Note, it is now possible to schedule when silent mode will be active. The function should only be used for limited periods, because F2050 might not reach its dimensioned power.

Detect compressor phase: This shows in which phase the heat pump detected that you have F2050 230V~50Hz. Phase detection normally occurs automatically in connection with start-up of the indoor module/control module. This setting can be changed manually.

Current limitation: Here, you set whether the current limitation function will be activated for the outdoor unit, if you have F2050 230V~50Hz. During active function, you can limit the value of the maximum current.

BlockFreq 1-2: Here, you can select the frequency ranges within which the outdoor unit is not permitted to work. This function can be used if certain compressor speeds cause disruptive noise in the house. The setting range varies depending on heat pump model and size.

Setting range: on/off

F-series – indoor module / control module

These settings are made on the display on the indoor module/control module.

MENU 5.11.1.1 - HEAT PUMP

Here, you make specific settings for the installed heat pump.

Cooling permitted
Setting range: off / on

Silent mode permitted
Setting range: yes / no

Detect compressor phase
Setting range F2050 1 x 230 V: off/on

Current limit
Setting range: 6 – 32 A

Factory setting: 32 A

blockFreq 1
Setting range: yes / no

blockFreq 2
Setting range: yes / no

Cooling permitted: Here, you can set whether the cooling function will be activated for the heat pump.

Silent mode permitted: Here, you set whether silent mode will be activated for the heat pump. Please note that you now have the option to schedule when silent mode will be active.

The function should only be used for limited periods, because F2050 possibly may not reach its dimensioned output.

Detect compressor phase: This shows in which phase the heat pump detected that you have F2050 230V~50Hz. Phase detection normally occurs automatically in connection with start-up of the indoor module/control module. This setting can be changed manually.

Current limitation: Here, you set whether the current limitation function will be activated for the heat pump, if you have F2050 230V~50Hz. During active function, you can limit the value of the maximum current.

BlockFreq 1: Here, you can select a frequency range within which the heat pump is not permitted to work. This function can be used if certain compressor speeds cause disturbing noise in the house.

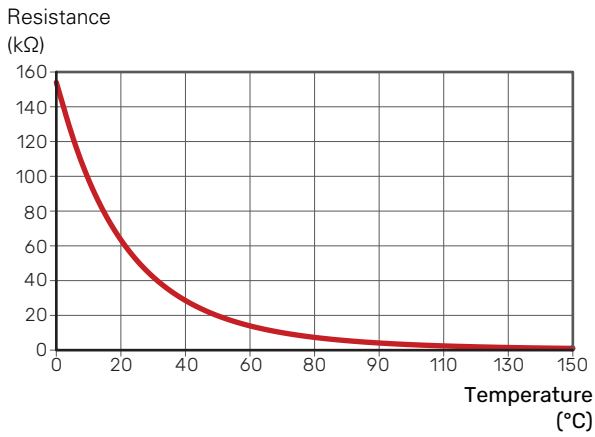
BlockFreq 2: Here, you can select a frequency range within which the heat pump is not permitted to work.

Service

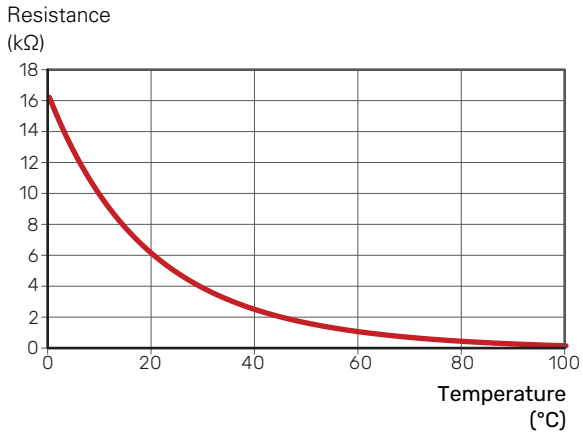
Temperature sensor data

DATA FOR TEMPERATURE SENSOR IN F2050-6

Tho-D

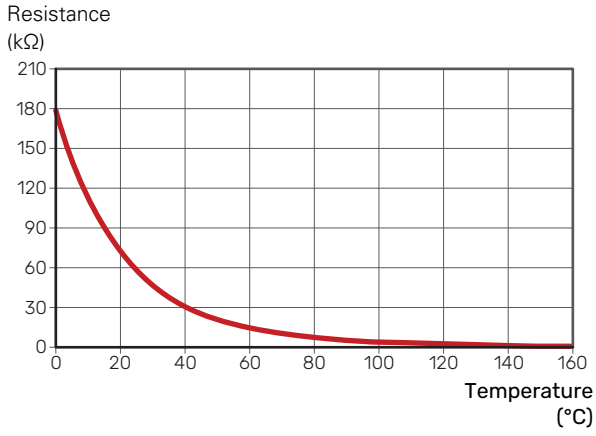


Tho-A, R

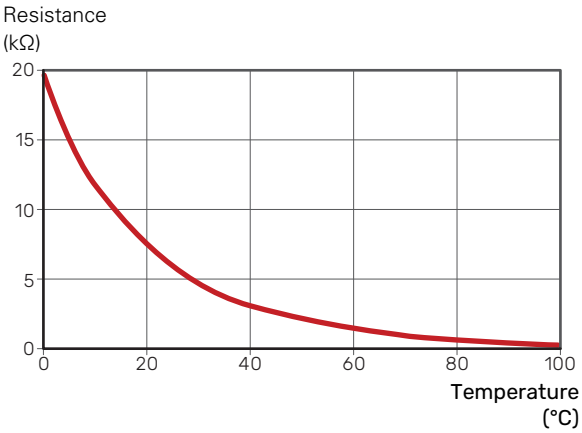


DATA FOR TEMPERATURE SENSOR IN F2050-10

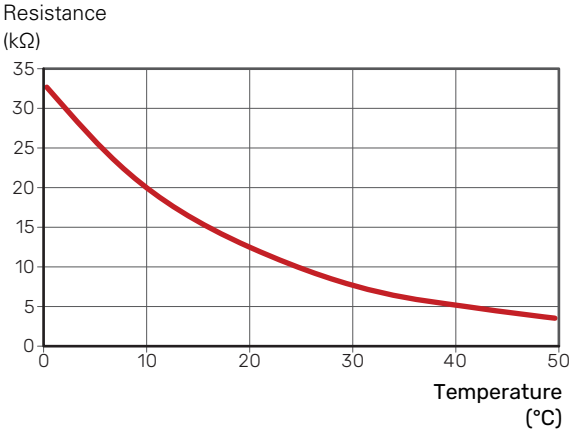
Tho-D



Tho-S, Tho-R1, Tho-R2

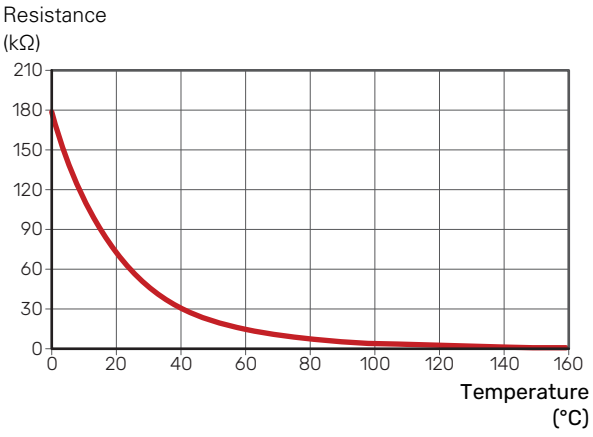


BT28 (Tho-A)

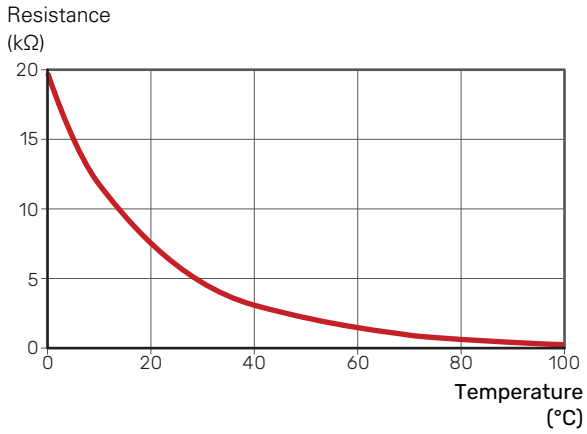


DATA FOR TEMPERATURE SENSOR IN F2050-12, -16

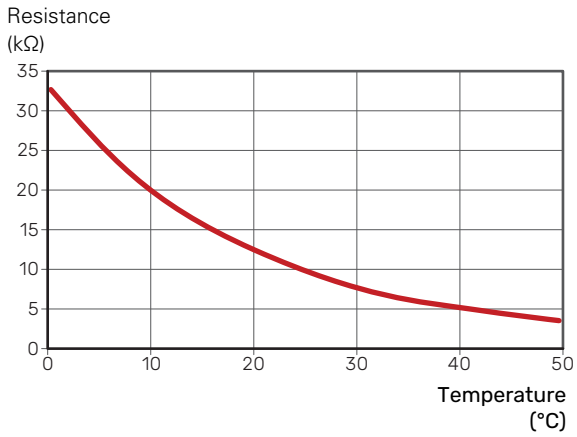
Tho-D



Tho-S, Tho-R1, Tho-R2



BT28 (Tho-A)



DATA FOR TEMPERATURE SENSOR BT3, BT12, BT15

Temperature (°C)	Resistance (kOhm)	Voltage (VDC)
-10	56.20	3.047
0	33.02	2.889
10	20.02	2.673
20	12.51	2.399
30	8.045	2.083
40	5.306	1.752
50	3.583	1.426
60	2.467	1.136
70	1.739	0.891
80	1.246	0.691

Servicing and maintenance

Important

The NIBE heat pump requires minimal maintenance but to ensure the continued efficient running of your heat pump and guarantee in the warranty period it is recommended that it is checked and serviced annually by a qualified engineer.

Any servicing must be carried out by a competent person.

When replacing a part on the appliance, use only spare parts supplied by NIBE.

If any electrical connections have been disconnected and re-connected, checks for earth continuity must be tested for with a suitable multimeter.

On completion the Benchmark service record should be completed.

General inspection

Check the following:

1. Condition of casing
2. Check Inlet grille is not clogged with leaves
3. Check fan for any obstructions
4. Electrical supply connections
5. Water connections
6. Heating system pressure
7. Alarm log

Correct any fault before continuing.

> **CAUTION!**
>
> Before removing any covers or replacing parts the heat pump must be isolated from the mains electrical supply.

Heating System

1. Inspect start and stop temperatures. Correct if required.
2. Inspect heat curve (SMO & VVM only). Correct if required.
3. Check the heating system flow temperatures, the difference should be between 5–10°C. Adjust flow if required.
4. Inspect the heat pump charge flow temperature difference against charge flow with graphs on page 27. Adjust if required.

> **CAUTION!**
>
> After servicing, complete the relevant Service Interval Record section of the Benchmark Checklist located at the back of this document.
>
> Completion of the Service Interval Record is a condition of warranty. For full terms and conditions of warranty, please see our website nibe.co.uk.

Disturbances in comfort

In most cases, the indoor module/control module notes a malfunction (a malfunction can lead to disturbance in comfort) and indicates this with alarms and action instructions in the display.

Troubleshooting

CAUTION!
In the event of action to rectify malfunctions that require work within screwed hatches, the incoming supply electricity must be isolated at the safety switch by or under the supervision of a qualified electrician.

NOTE!
Alarms are acknowledged on the indoor module / control module.

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

BASIC ACTIONS

Start by checking the following:

- All supply cables to the heat pump are connected.
- Group and main fuses of the accommodation.
- The property's earth circuit breaker.
- The heat pump's fuse / automatic protection. (FC1 / FB1, FB1 only if KVR is installed.)
- The indoor module's/control module's fuses.
- The indoor module's/control module's temperature limiters.
- That the air flow to F2050 is not blocked by foreign objects.
- That F2050 does not have any external damage.

F2050 DOES NOT START

- There is no demand.
  - The indoor module/control module does not call on heating, cooling or hot water.
- Compressor blocked due to the temperature conditions.
  - Wait until the temperature is within the product's working range.
- Minimum time between compressor starts has not been reached.
  - Wait for at least 30 minutes and then check if the compressor has started.
- Alarm tripped.
  - Follow the display instructions.

F2050 NOT COMMUNICATING

- Check that the addressing of F2050 is correct.
- Check that the communication cable is correctly connected and working.

LOW HOT WATER TEMPERATURE OR A LACK OF HOT WATER

NOTE!
The setting for the hot water is always performed on the indoor module or the control module.

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 hot water settings in indoor module or control module.
  - See the Installer Manual for the indoor module/control module.
- Clogged filterball.
  - Switch off the system. Check and clean the filterball.

LOW ROOM TEMPERATURE

- Closed thermostats in several rooms.
  - Set the thermostats to max in as many rooms as possible.
- Incorrect settings in indoor module or control module.
  - See the Installer Manual for the indoor module/control module.
- Air-filled radiators/underfloor heating coils.
  - Bleed the system.

HIGH ROOM TEMPERATURE

- Incorrect settings in indoor module or control module.
  - See the Installer Manual for the indoor module/control module.

LARGE AMOUNT OF WATER BELOW F2050

- The accessory KVR 10 is required.
- If KVR 10 is installed, check that the water drainage can flow freely.

Alarm list

Alarms S-series	Alarm F-series	Alarm text on the display	Description	May be due to
103	3	Sensor fault BT3	Sensor fault, Sensor incoming water in F2050 (BT3).	• Open circuit or short circuit on sensor input • Sensor does not work (see section "Disturbances in comfort") • Defective control board (PWB1) in F2050
108	12	Sensor fault BT12	Sensor fault, Sensor outgoing water in F2050 (BT12).	• Open circuit or short circuit on sensor input • Sensor does not work (see section "Disturbances in comfort") • Defective control board (PWB1) in F2050
	15	Sensor fault BT15	Sensor fault, Sensor liquid line in F2050 (BT15).	• Open circuit or short circuit on sensor input • Sensor does not work (see section "Disturbances in comfort") • Defective control board (PWB1) in F2050
147	277	Sensor fault Tho-R	Sensor fault, heat exchanger in F2050 (Tho-R).	• Open circuit or short circuit on sensor input • Sensor does not work (see section "Disturbances in comfort") • Defective control board (PWB1) in F2050
148	278	Sensor fault Tho-A	Sensor fault, outdoor temperature sensor in F2050 (Tho-A).	• Open circuit or short circuit on sensor input • Sensor does not work (see section "Disturbances in comfort") • Defective control board (PWB1) in F2050
149	279	Sensor fault Tho-D	Sensor fault, hot gas in F2050 (Tho-D).	• Open circuit or short circuit on sensor input • Sensor does not work (see section "Disturbances in comfort") • Defective control board (PWB1) in F2050
150	280	Sensor fault Tho-S	Sensor fault, suction gas in F2050 (Tho-S).	• Open circuit or short circuit on sensor input • Sensor does not work (see section "Disturbances in comfort") • Defective control board (PWB1) in F2050
151	281	Sensor fault LPT	Sensor fault, low pressure transmitter in F2050.	• Open circuit or short circuit on sensor input • Sensor does not work (see section "Disturbances in comfort") • Defective control board (PWB1) in F2050 • Fault in the refrigerant circuit
215	162	High condenser out	Too high temperature out from the condenser. Self-resetting.	• Low flow during heating operation • Too high set temperatures
216	163	High condenser in	Too high temperature into the condenser. Self-resetting.	• Temperature generated by another heat source
221	183	Defrosting in progress	not an alarm, but an operating status instead.	• Set when the heat pump runs the defrosting procedure
229	220	HP alarm	The high pressure switch (63H1) deployed 5 times within 60 minutes or for 60 minutes continuously.	• Insufficient air circulation or blocked heat exchanger • Open-circuit or short-circuit on input for high pressure switch (63H1) • Defective high pressure switch • Expansion valve not connected correctly • Service valve closed • Defective control board (PWB1) in F2050 • Low or no flow during heating operation • Defective circulation pump • Defective fuse F (4A)
230	221	LP alarm	Too low value on the low pressure sensor 3 times within 60 minutes.	• Open circuit or short circuit on input for low pressure sensor • Defective low pressure sensor • Defective control board (PWB1) in F2050 • Open-circuit or short-circuit on input for suction gas sensor (Tho-S) • Defective suction gas sensor (Tho-S)

Alarms S-series	Alarm F-series	Alarm text on the display	Description	May be due to
232	223	OU Com. error	Communication between the control board and the communication board is interrupted. There must be 22 volt direct current (DC) at the switch (CNW2) on the control board (PWB1).	• Any circuit breakers for F2050 off • Incorrect cable routing
233	224	Fan alarm	Deviations in the fan speed in F2050.	• The fan cannot rotate freely • Defective control board (PWB1) in F2050 • Defective fan motor • Control board (PWB1) in F2050 dirty • Fuse (F2) tripped
238	230	Continuously high hot gas	Temperature deviation on the hot gas sensor (Tho-D) twice within 60 minutes or for 60 minutes continuously.	• Sensor does not work (see section "Ambient temperature sensor") • Insufficient air circulation or heat exchanger • Blocked • If the fault persists during cooling, there may be an insufficient amount of refrigerant. • Defective control board (PWB1) in F2050
247	254	Communication error	Communication fault with accessory board	• F2050 not powered • Fault in the communication cable.
251	261	High temperature in heat exchanger	Temperature deviation on the heat exchanger sensor (Tho-R1/R2) five times within 60 minutes or for 60 minutes continuously	• Sensor does not work (see section "Disturbances in comfort") • Insufficient air circulation or blocked heat exchanger • Defective control board (PWB1) in F2050 • Too much refrigerant
252	262	Power transistor too hot	When IPM (Intelligent power module) displays FO-signal (Fault Output) five times during a 60-minute period.	• Can occur when 15V power supply to the inverter (PCB) is unstable.
253	263	Inverter error	Voltage from the inverter outside the parameters four times within 30 minutes.	• Incoming power supply interference • Service valve closed • Insufficient amount of refrigerant • Compressor fault • Defective circuit board for inverter in F2050
254	264	Inverter error	Communication between circuit board for inverter and control board broken.	• Open circuit in connection between boards • Defective circuit board for inverter in F2050 • Defective control board (PWB1) in F2050
255	265	Inverter error	Continuous deviation on power transistor for 15 minutes.	• Defective fan motor • Defective circuit board for inverter in F2050
256	266	Not enough refrigerant	Not enough refrigerant is detected on start-up in cooling mode.	• Service valve closed • Loose connection, sensor (BT15, BT3) • Defective sensor (BT15, BT3) • Too little refrigerant
257	267	Inverter error	Failed start for compressor	• Defective circuit board for inverter in F2050 • Defective control board (PWB1) in F2050 • Compressor fault
258	268	Inverter error	Overcurrent, Inverter A/F module	• Sudden power failure
260	271	Cold outdoor air	Temperature of BT28 below the value that permits operation	• Cold weather conditions • Sensor fault
261	272	Hot outdoor air	Temperature of BT28 above the value that permits operation	• Warm weather conditions • Sensor fault
269	294	Non-compatible air/water heat pump	Heat pump and indoor module do not function together properly due to technical parameters.	• Outdoor module and indoor module are not compatible.
316	404	Sensor fault BP4	Sensor fault, Sensor high pressure heating/low pressure cooling in F2050 (BP4).	Open circuit or short circuit on sensor input Sensor does not work (see section "Disturbances in comfort") Defective control board (PWB1) in F2050

Accessories

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

Not all accessories are available on all markets.

CONDENSATION WATER PIPE KVR

Condensation water pipe, different lengths.

KVR 10 suitable for (F2050-6 och F2050-10):

KVR 10-10
1 metres

Part no. 067 614

KVR 10-30
3 metres

Part no. 067 616

KVR 10-60
6 metres

Part no. 067 618

KVR 13 suitable for (F2050-12 och F2050-16):

KVR 13-10
1 metres
Part no. 067 973

KVR 13-30
3 metres
Part no. 067 974

KVR 13-60
6 metres
Part no. 067 975

STAND AND BRACKETS

Ground stand GSU 30
F2050-6, -10

Part no. 067 653

Ground stand GSU 40
F2050-12, -16

Part no. 067 965

Wall bracket BAU 30
For wall mounting F2050-6, -10

Part no. 067 832

WATER HEATER/ACCUMULATOR TANK

HA-WH5
Megacoil, 160 litre
Art. no G1110001

Megacoil, 200 litre
Art. no G1110002

Megacoil, 300 litre
Art. no G1110003

Megacoil, Solar 200 litre
Art. no G1110004

Megacoil, Solar 300 litre
Art. no G1110005

HOT WATER CONTROL

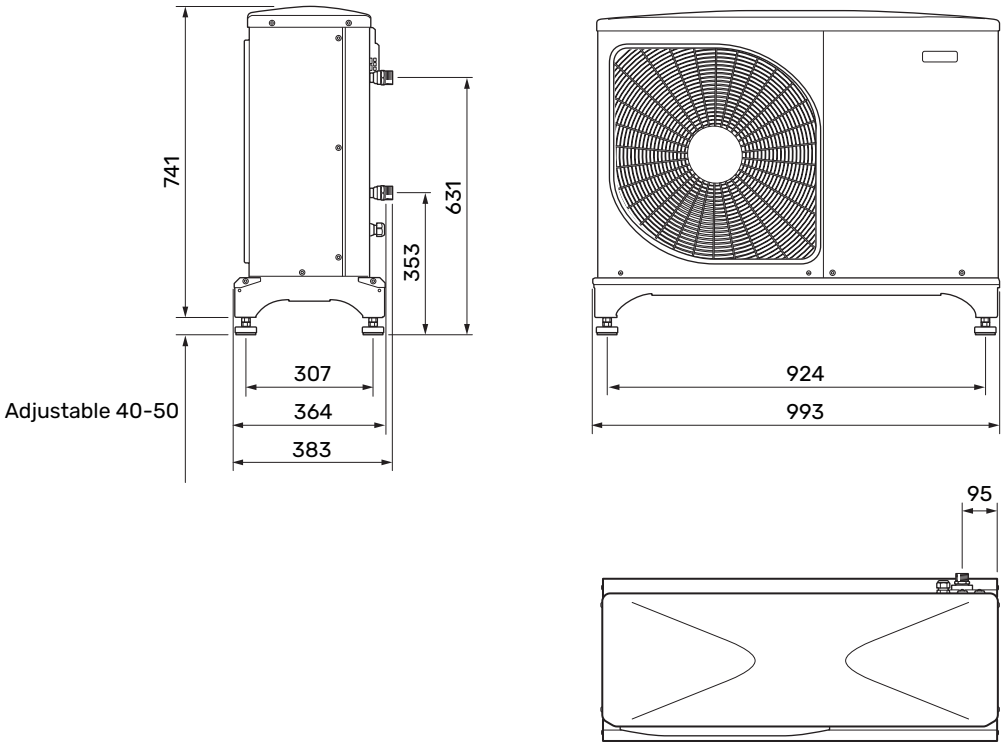
VST 05
Reversing valve, cu-pipe Ø22
(Max recommended power, 8 kW)
Part no. 089 982

VST 11
Reversing valve, cu-pipe Ø28
(Max recommended power, 18 kW)
Part no. 089 152

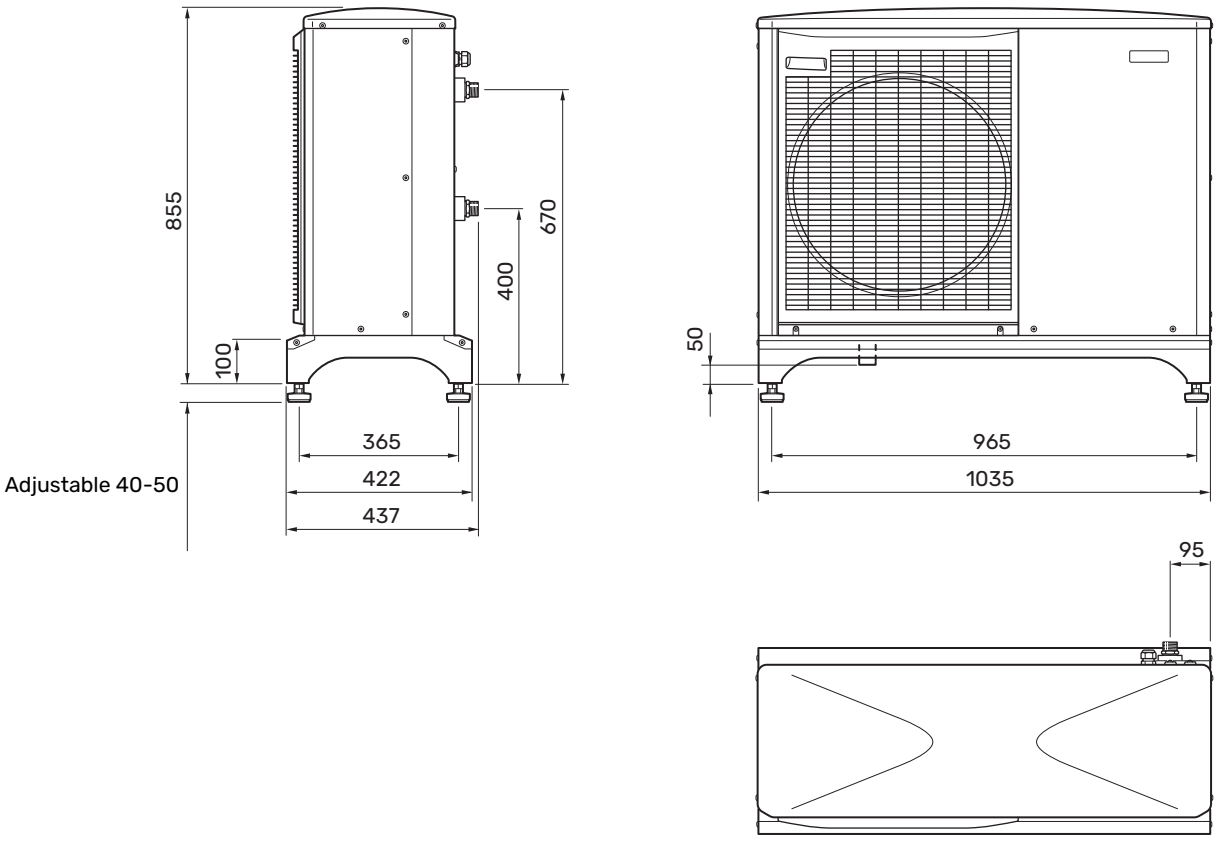
Technical data

Dimensions

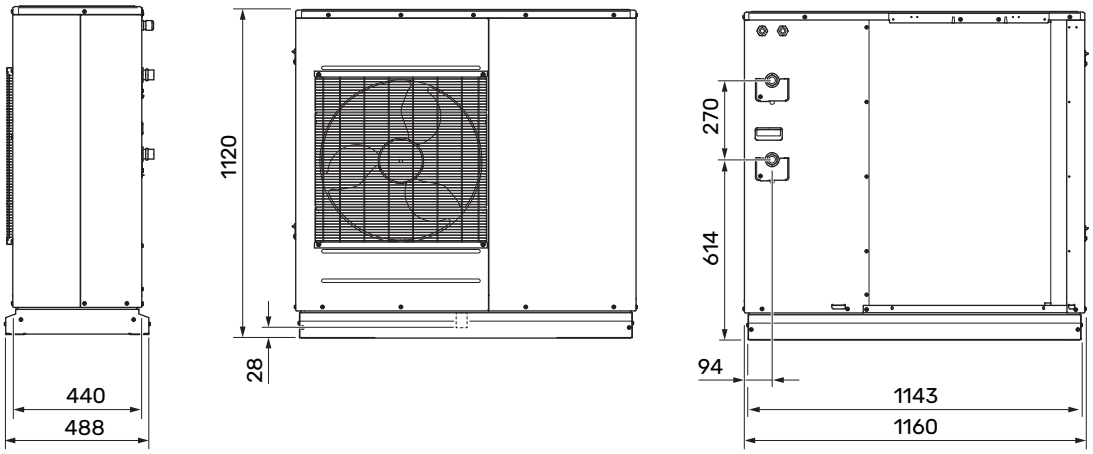
F2050-6



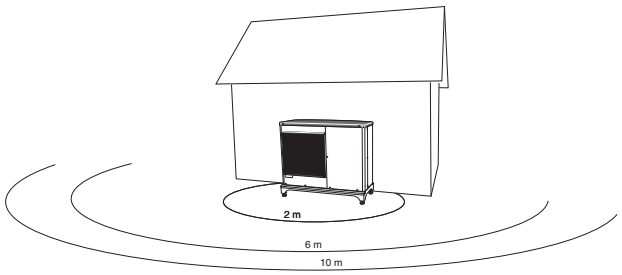
F2050-10



F2050-12/-16



Sound levels



F2050 is usually placed next to a house wall, which gives a directed sound distribution that has to be taken into consideration. Accordingly, when setting up, you should always attempt to select 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.

F2050 adjusts the fan speed depending on the ambient temperature and evaporation temperature.

		Sound power [1]	Sound pressure at distance (m) [2]									
			1	2	3	4	5	6	7	8	9	10
F2050-6	Nominal sound value	53	48.0	42.0	38.5	36.0	34.0	32.5	31.1	30.0	28.9	28.0
F2050-10	Nominal sound value	53	48.0	42.0	38.5	36.0	34.0	32.5	31.1	30.0	28.9	28.0
F2050-12	Nominal sound value	60	55.0	49.0	45.5	43.0	41.0	39.5	38.1	37.0	35.9	35.0
F2050-16	Nominal sound value	63	58.0	52.0	48.5	46.0	44.0	42.5	41.1	40.0	38.9	38.0

1 Sound power level, L_W(A), according to EN12102

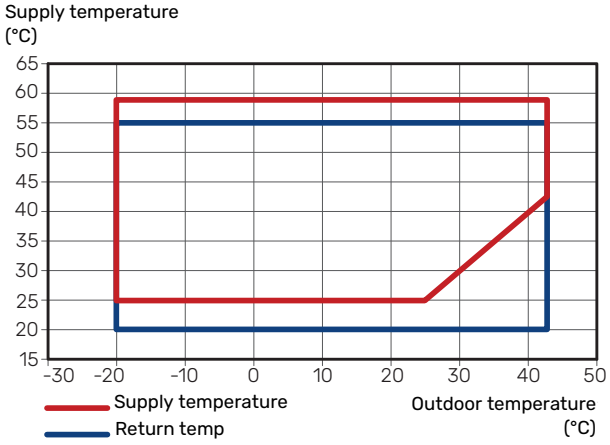
2 Sound pressure calculated according to directivity factor Q=4

Technical specifications

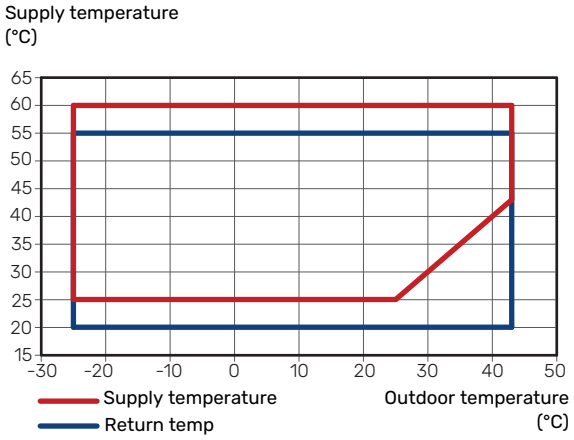
WORKING RANGE, HEATING

F2050-6/-10

The supply temperature is permitted to be lower for a short period, e.g. at start-up.

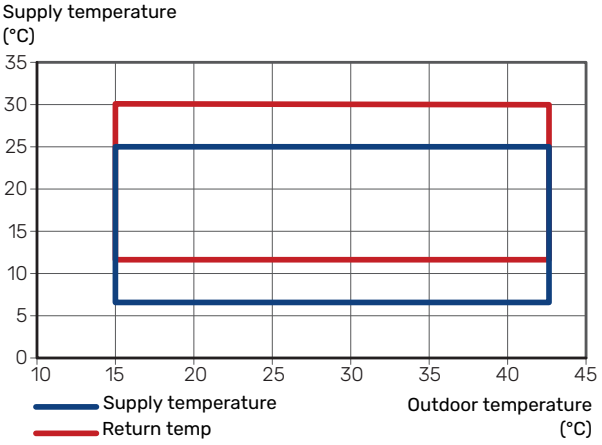


F2050-12/-16

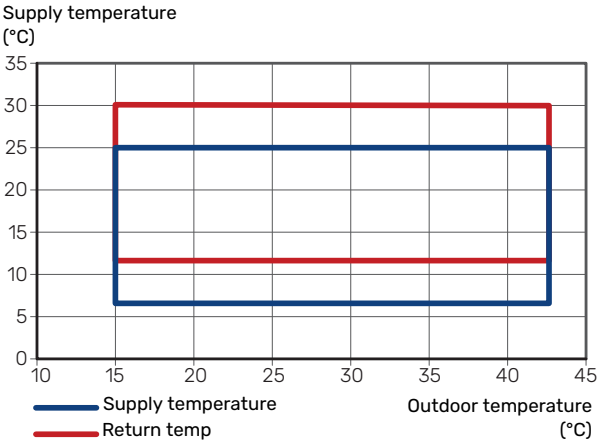


WORKING RANGE, COOLING

F2050-6/-10



F2050-12/-16



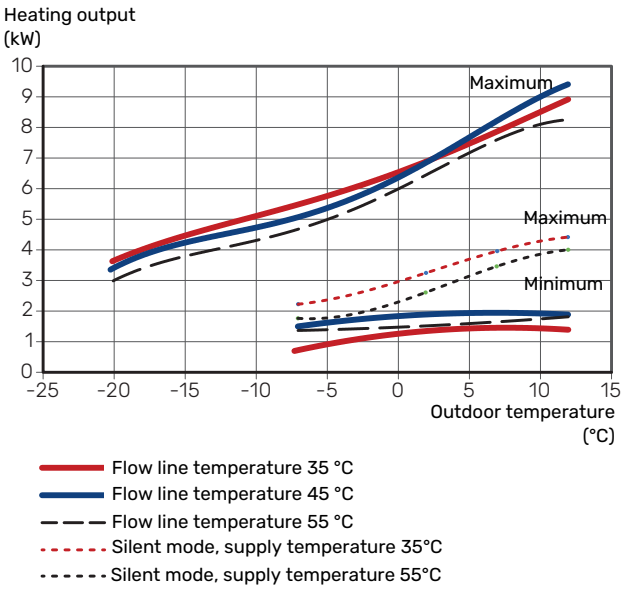
CAPACITY AND COP

Power and COP at different supply temperatures during continuous operation (excluding defrosting).

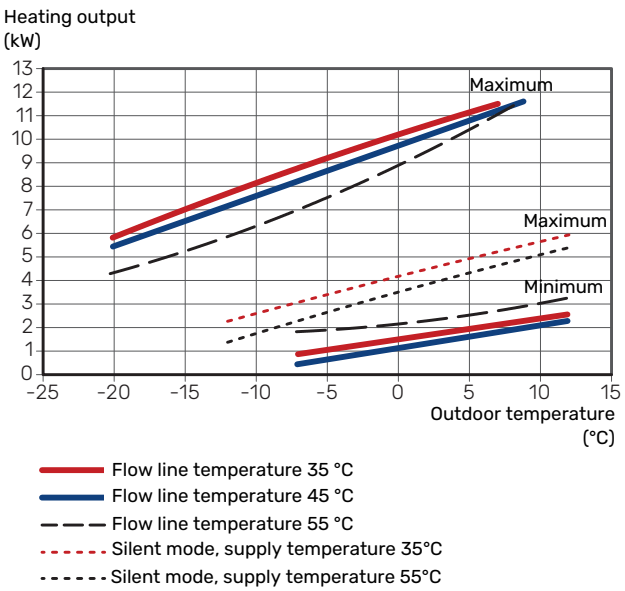
Power during heating operation

Maximum and minimum capacity during continuous operation.

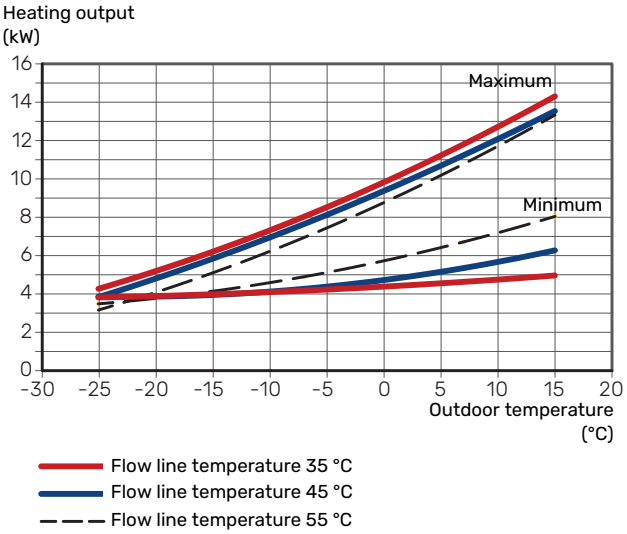
F2050-6



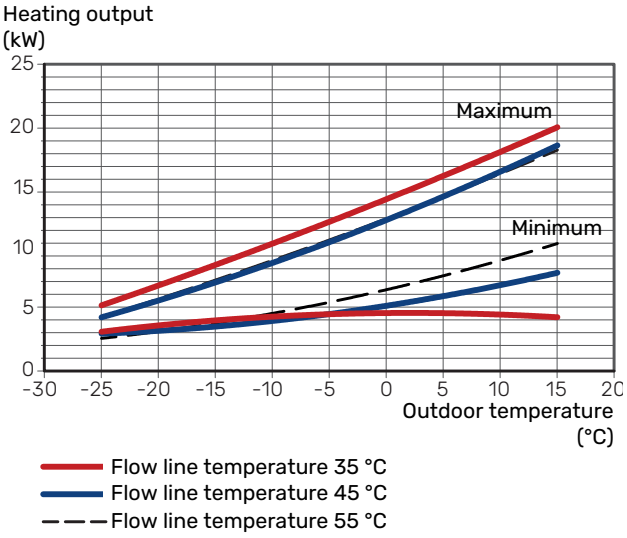
F2050-10



F2050-12



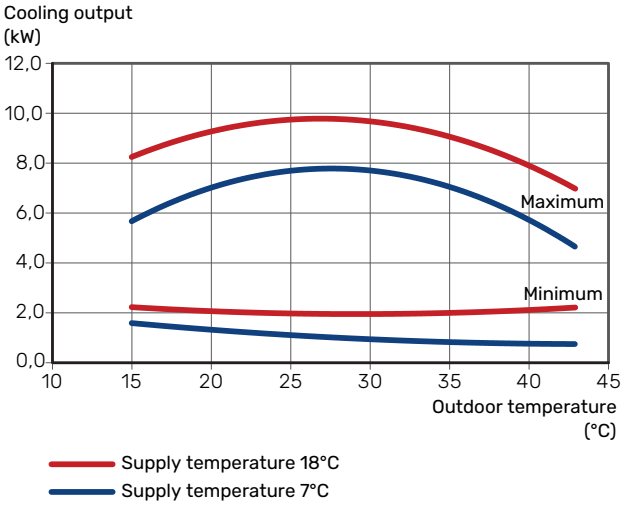
F2050-16



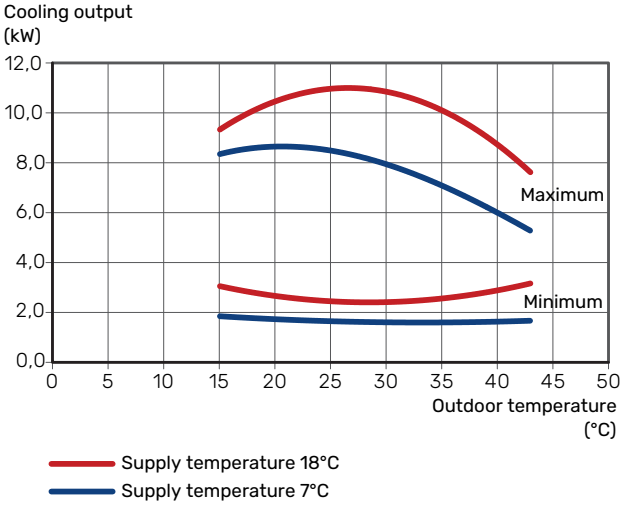
Power during cooling operation

Maximum and minimum capacity during continuous operation.

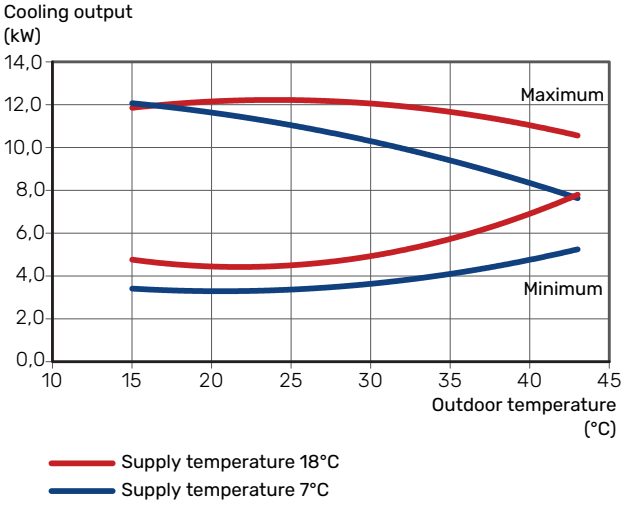
F2050-6



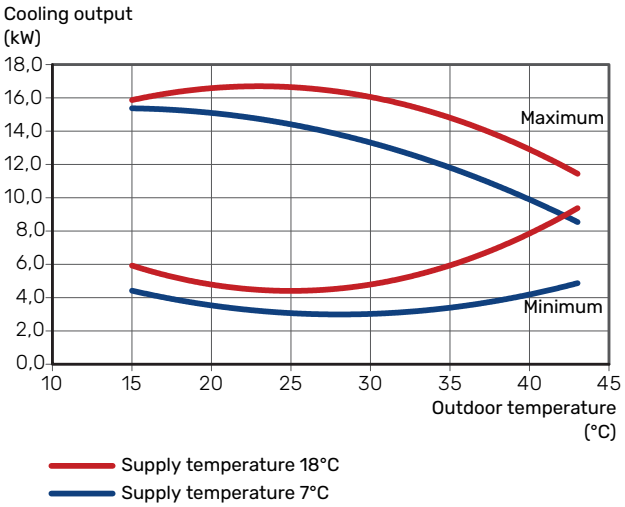
F2050-10



F2050-12

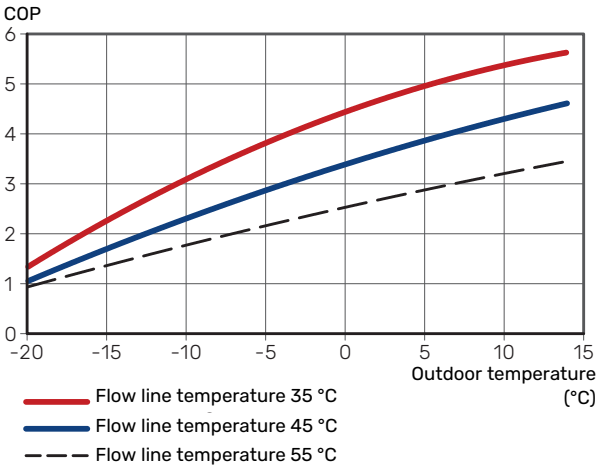


F2050-16

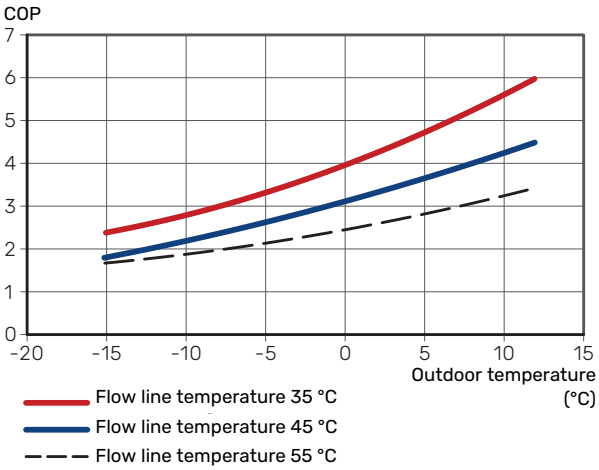


COP during heating operation

F2050-6



F2050-10



F2050		6	10	12	16
Output data according to EN 14 511, partial load [1]					
Heating Capacity / power input / COP (kW/kW/-) at nominal flow Outdoor temp: / Supply temp.	-7 / 35 °C	5.55 / 2.05 / 2.71	7.18 / 2.93 / 2.45	6.61 / 2.32 / 2.85	10.50 / 3.62 / 2.90
	2 / 35 °C	2.31 / 0.56 / 4.13	3.46 / 0.83 / 4.17	4.57 / 1.15 / 3.97	5.21 / 1.19 / 4.38
	2 / 45 °C	2.02 / 0.67 / 3.01	3.24 / 1.12 / 3.24	6.80 / 2.20 / 3.10	9.18 / 3.21 / 2.86
	7 / 35 °C	2.65 / 0.49 / 5.41	4.00 / 0.75 / 5.33	5.36 / 1.01 / 5.31	6.31 / 1.20 / 5.26
	7 / 45 °C	2.43 / 0.65 / 3.74	5.00 / 1.28 / 3.91	5.00 / 1.43 / 3.50	6.75 / 1.69 / 4.00
Cooling Capacity / power input / EER (kW/kW/-) at maximum flow Outdoor temp: / Supply temp.	35 / 7 °C	5.32 / 1.94 / 2.74	7.07 / 2.40 / 2.95	9.00 / 3.21 / 2.80	12.5 / 4.31 / 2.90
	35 / 18 °C	7.55 / 2.11 / 3.58	10.79 / 3.00 / 3.60	12.50 / 3.68 / 3.40	16.5 / 4.34 / 3.80
SCOP according to EN 14825					
Nominal heat output ($P_{designh}$) average climate 35 °C / 55 °C (Europe)	kW	5.2 / 5.6	6.3 / 6.5	7.5 / 7.5	11.5 / 11.5
Nominal heat output ($P_{designh}$) cold climate 35 °C / 55 °C	kW	5.8 / 5.7	6.5 / 6.2	11.0 / 11.0	16.0 / 16.0
Nominal heat output ($P_{designh}$) warm climate 35 °C / 55 °C	kW	5.6 / 5.5	6.8 / 6.6	9.0 / 9.0	12.0 / 12.0
SCOP average climate, 35 °C / 55 °C (Europe)		5.08 / 3.56	4.59 / 3.36	4.87 / 3.49	4.58 / 3.42
SCOP cold climate, 35 °C / 55 °C		4.10 / 3.05	3.95 / 2.94	3.85 / 2.95	3.47 / 2.75
SCOP warm climate, 35 °C / 55 °C		6.70 / 4.53	6.59 / 4.49	6.47 / 4.34	5.77 / 4.21
Energy rating, average climate [2]					
The product's room heating efficiency class 35 °C / 55 °C [3]		A+++ / A++	A+++ / A++	A+++ / A++	A+++ / A++
The system's room heating efficiency class 35 °C / 55 °C [4]		A+++ / A++			
Electrical data					
Rated voltage		230 V ~ 50 Hz, 230 V 2 ~ 50 Hz			
Max operating current, heat pump	A_{rms}	15	16	21	28
Max operating current, compressor	A_{rms}	14	15	20	27
Max. power, fan	W	50	86	39	46
Fuse	A_{rms}	16	16	30	30
Enclosure class		IP24			
Refrigerant circuit					
Type of refrigerant		R32			
GWP refrigerant		675			
Volume	kg	1.3	1.84	2.0	2.9
Type of compressor		Twin Rotary			
CO_2-equivalent (The cooling circuit is hermetically sealed.)	t	0.88	1.24	1.35	1.96
Cut-out value pressure switch HP (BP1)	MPa (bar)	-	4.15 (41.5)	4.15 (41.5)	4.15 (41.5)
Airflow					
Max airflow	m^3/h	2,530	3,000	3,180	3,600
Working area					
Min./max. air temperature, heating	°C	-20 / 43	-20 / 43	-25 / 43	-25 / 43
Min./max. air temperature, cooling	°C	15 / 43			
Defrosting system		Reverse cycle			
Heating medium circuit					
Max system pressure heating medium	MPa (bar)	0.6 (6.0)	0.6 (6.0)	0.45 (4.5)	0.45 (4.5)
Recommended flow interval, heating operation	l/s	0.08 – 0.32	0.12 – 0.38	0.15 – 0.42	0.25 – 0.79
Recommended flow interval, cooling operation	l/s	0.11 – 0.29	0.15 – 0.38	0.20 – 0.42	0.32 – 0.80
Min. design flow, defrosting (100% pump speed)	l/s	0.19	0.19	0.26	0.40
Min./max. HM temp, continuous operation	°C	25 / 58	25 / 58	25 / 60	25 / 60
Connection heating medium F2050 external thread		G1 (Ø28 mm)			
Connection heating medium flex pipe		G1 (Ø28 mm)			
Min. recommended pipe dimension (system)	DN (mm)	20 (22)			
Dimensions and weight					
Width	mm	993	1,035	1,160	1,160
Depth	mm	383	422	440	440
Height (with stand)	mm	781 (+10/-0)	895 (+10/-0)	1,120	1,120
Net weight	kg	76	83	104	118
Miscellaneous					
Part no.		064 328	064 318	064 361	064 362

1 Power statements including defrosting according to EN 14511 at heating medium supply corresponding to DT=5 K at 7 / 45.

2 Reported efficiency for the system also takes the temperature regulator into account. If the system is supplemented with external additional heat or

solar heating, the total efficiency of the system must be recalculated.

3 Scale for the product's room heating efficiency class A+++ to D. Control module model SMO S.

4 Scale for the system's room heating efficiency class A+++ to G. Control module model SMO S.

Energy labelling

INFORMATION SHEET

Supplier		NIBE			
Model		**F2050-6**	**F2050-10**	**F2050-12**	**F2050-16**
Temperature application	°C	35 / 55	35 / 55	35 / 55	35 / 55
Seasonal space heating energy efficiency class, average climate		A+++ / A++	A+++ / A++	A+++ / A++	A+++ / A++
Rated heat output ($P_{designh}$), average climate	kW	5 / 6	6 / 6	7.5 / 7.8	11.5 / 11.5
Annual energy consumption space heating, average climate	kWh	2,116 / 3,250	2,834 / 3,961	3,183 / 4,613	5,182 / 6,950
Seasonal space heating energy efficiency, average climate	%	200 / 139	181 / 132	192 / 137	180 / 134
Sound power level L_{WA} indoors	dB	-	-	-	-
Rated heat output ($P_{designh}$), cold climate	kW	6 / 6	7 / 6	11.0 / 11.0	16.0 / 16.0
Rated heat output ($P_{designh}$), warm climate	kW	6 / 5	7 / 7	9.0 / 9.0	12.0 / 12.0
Annual energy consumption space heating, cold climate	kWh	3,487 / 4,604	4,059 / 5,204	7,051 / 9,187	11,360 / 14,350
Annual energy consumption space heating, warm climate	kWh	1,110 / 1,617	1,379 / 1,964	1,860 / 2,768	2,780 / 3,810
Seasonal space heating energy efficiency, cold climate	%	161 / 119	155 / 114	151 / 115	136 / 107
Seasonal space heating energy efficiency, warm climate	%	265 / 178	260 / 177	256 / 171	228 / 165
Sound power level L_{WA} outdoors	dB	53	53	60	63

DATA FOR ENERGY EFFICIENCY OF THE PACKAGE

Model		F2050-6	F2050-10	F2050-12	F2050-16
Control module model		**SMO**	**SMO**	**SMO S40**	**SMO S40**
Temperature application	°C	35 / 55	35 / 55	35 / 55	35 / 55
Controller, class		VI			
Controller, contribution to efficiency	%	4.0			
Seasonal space heating energy efficiency of the package, average climate	%	204 / 143	185 / 136	196 / 141	184 / 138
Seasonal space heating energy efficiency class of the package, average climate		**A+++ / A++**	**A+++ / A++**	**A+++ / A++**	**A+++ / A++**
Seasonal space heating energy efficiency of the package, cold climate	%	165 / 123	159 / 118	155 / 119	140 / 111
Seasonal space heating energy efficiency of the package, warm climate	%	269 / 182	264 / 181	260 / 175	232 / 169

Reported efficiency for the system also takes the temperature regulator into account. If the system is supplemented with external additional heat or solar heating, the total efficiency of the system must be recalculated.

TECHNICAL DOCUMENTATION

Model		F2050-6					
Type of heat pump		☒ Air-water ☐ Exhaust-water ☐ Brine-water ☐ Water-water					
Low-temperature heat pump		☐ Yes ☒ No					
Integrated immersion heater for additional heat		☐ Yes ☒ No					
Heat pump combination heater		☐ Yes ☒ No					
Climate		☒ Average ☐ Cold ☐ Warm					
Temperature application		☒ Medium (55°C) ☐ Low (35°C)					
Applied standards		EN14511 / EN14825 / EN12102					
Rated heat output	Prated	5.6	kW	*Seasonal space heating energy efficiency*	η_s	139	%
Declared capacity for space heating at part load and at outdoor temperature Tj				*Declared coefficient of performance for space heating at part load and at outdoor temperature Tj*			
Tj = -7 °C	Pdh	5.0	kW	Tj = -7 °C	COPd	1.95	-
Tj = +2 °C	Pdh	2.9	kW	Tj = +2 °C	COPd	3.51	-
Tj = +7 °C	Pdh	1.9	kW	Tj = +7 °C	COPd	4.99	-
Tj = +12 °C	Pdh	1.7	kW	Tj = +12 °C	COPd	6.33	-
Tj = biv	Pdh	5.0	kW	Tj = biv	COPd	1.95	-
Tj = TOL	Pdh	4.6	kW	Tj = TOL	COPd	1.75	-
Tj = -15 °C (if TOL < -20 °C)	Pdh		kW	Tj = -15 °C (if TOL < -20 °C)	COPd		-
Bivalent temperature	T_{biv}	-7	°C	Min. outdoor air temperature	TOL	-10	°C
Cycling interval capacity	Pcych		kW	Cycling interval efficiency	COPcyc		-
Degradation coefficient	Cdh	0.96	-	Max supply temperature	WTOL	58	°C
Power consumption in modes other than active mode				*Additional heat*			
Off mode	P_{OFF}	0.007	kW	Rated heat output	Psup	1.0	kW
Thermostat-off mode	P_{TO}	0.011	kW				
Standby mode	P_{SB}	0.011	kW	Type of energy input	Electric		
Crankcase heater mode	P_{CK}	0.000	kW				
Other items							
Capacity control	Variable			Rated airflow (air-water)		2,340	m³/h
Sound power level, indoors/outdoors	L_{WA}	- / 53	dB	Nominal heating medium flow			m³/h
Annual energy consumption	Q_{HE}	3,250	kWh	Brine flow brine-water or water-water heat pumps			m³/h
Contact information	*NIBE Energy Systems – Box 14 – Hannabadsvägen 5 – 285 21 Markaryd – Sweden*						

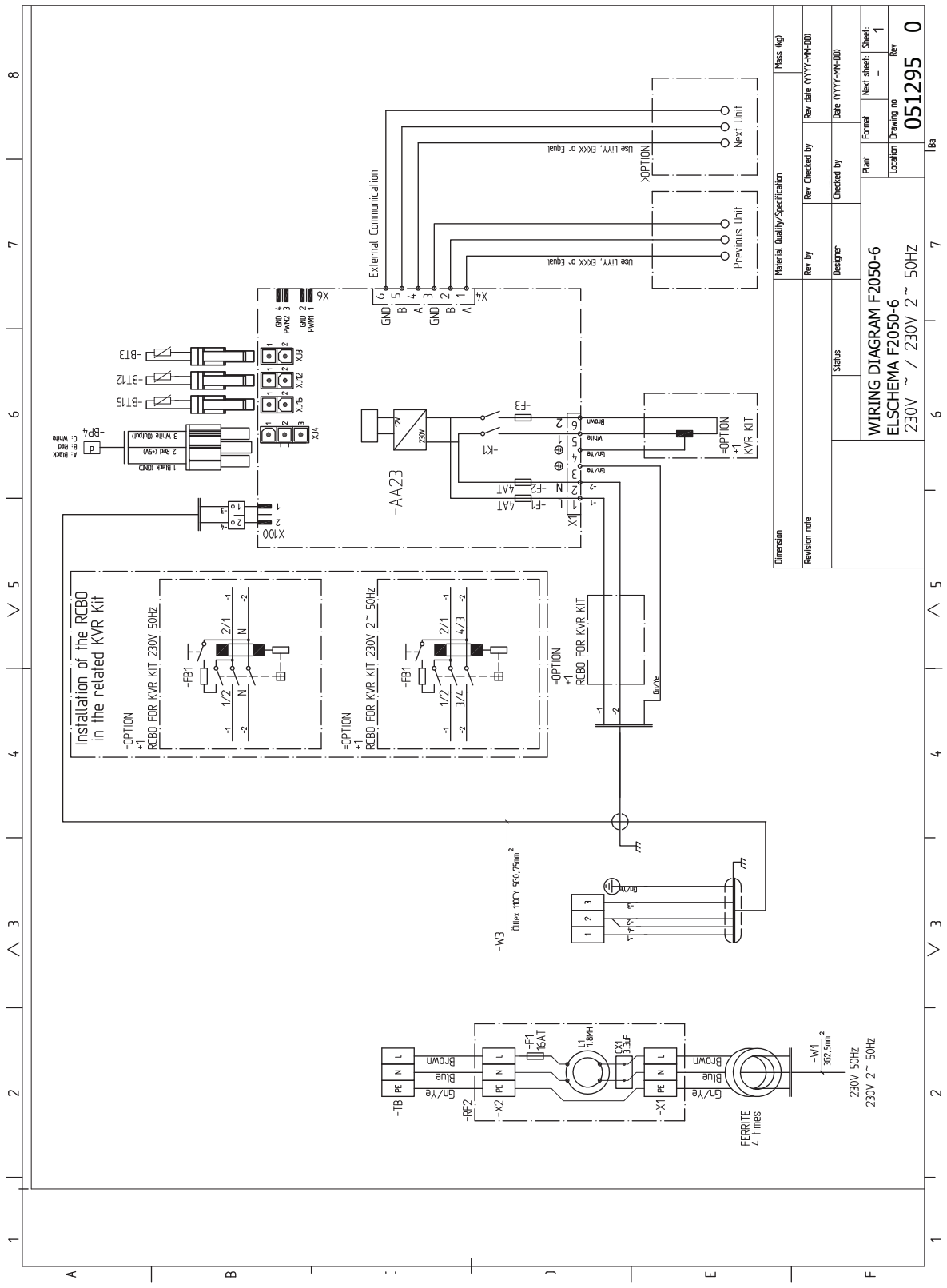
Model		F2050-10					
Type of heat pump		☒ Air-water ☐ Exhaust-water ☐ Brine-water ☐ Water-water					
Low-temperature heat pump		☐ Yes ☒ No					
Integrated immersion heater for additional heat		☐ Yes ☒ No					
Heat pump combination heater		☐ Yes ☒ No					
Climate		☒ Average ☐ Cold ☐ Warm					
Temperature application		☒ Medium (55°C) ☐ Low (35°C)					
Applied standards		EN14511 / EN14825 / EN12102					
Rated heat output	Prated	6.5	kW	*Seasonal space heating energy efficiency*	η_s	132	%
Declared capacity for space heating at part load and at outdoor temperature Tj				*Declared coefficient of performance for space heating at part load and at outdoor temperature Tj*			
Tj = -7 °C	Pdh	5.8	kW	Tj = -7 °C	COPd	1.98	-
Tj = +2 °C	Pdh	3.5	kW	Tj = +2 °C	COPd	3.17	-
Tj = +7 °C	Pdh	2.3	kW	Tj = +7 °C	COPd	4.98	-
Tj = +12 °C	Pdh	2.2	kW	Tj = +12 °C	COPd	5.50	-
Tj = biv	Pdh	5.8	kW	Tj = biv	COPd	1.98	-
Tj = TOL	Pdh	5.8	kW	Tj = TOL	COPd	1.69	-
Tj = -15 °C (if TOL < -20 °C)	Pdh		kW	Tj = -15 °C (if TOL < -20 °C)	COPd		-
Bivalent temperature	T_{biv}	-7	°C	Min. outdoor air temperature	TOL	-10	°C
Cycling interval capacity	Pcych		kW	Cycling interval efficiency	COPcyc		-
Degradation coefficient	Cdh	0.98	-	Max supply temperature	WTOL	60	°C
Power consumption in modes other than active mode				*Additional heat*			
Off mode	P_{OFF}	0.003	kW	Rated heat output	Psup	0.7	kW
Thermostat-off mode	P_{TO}	0.008	kW				
Standby mode	P_{SB}	0.008	kW	Type of energy input	Electric		
Crankcase heater mode	P_{CK}	0.000	kW				
Other items							
Capacity control	Variable			Rated airflow (air-water)		3,000	m³/h
Sound power level, indoors/outdoors	L_{WA}	- / 53	dB	Nominal heating medium flow			m³/h
Annual energy consumption	Q_{HE}	3,961	kWh	Brine flow brine-water or water-water heat pumps			m³/h
Contact information	*NIBE Energy Systems – Box 14 – Hannabadsvägen 5 – 285 21 Markaryd – Sweden*						

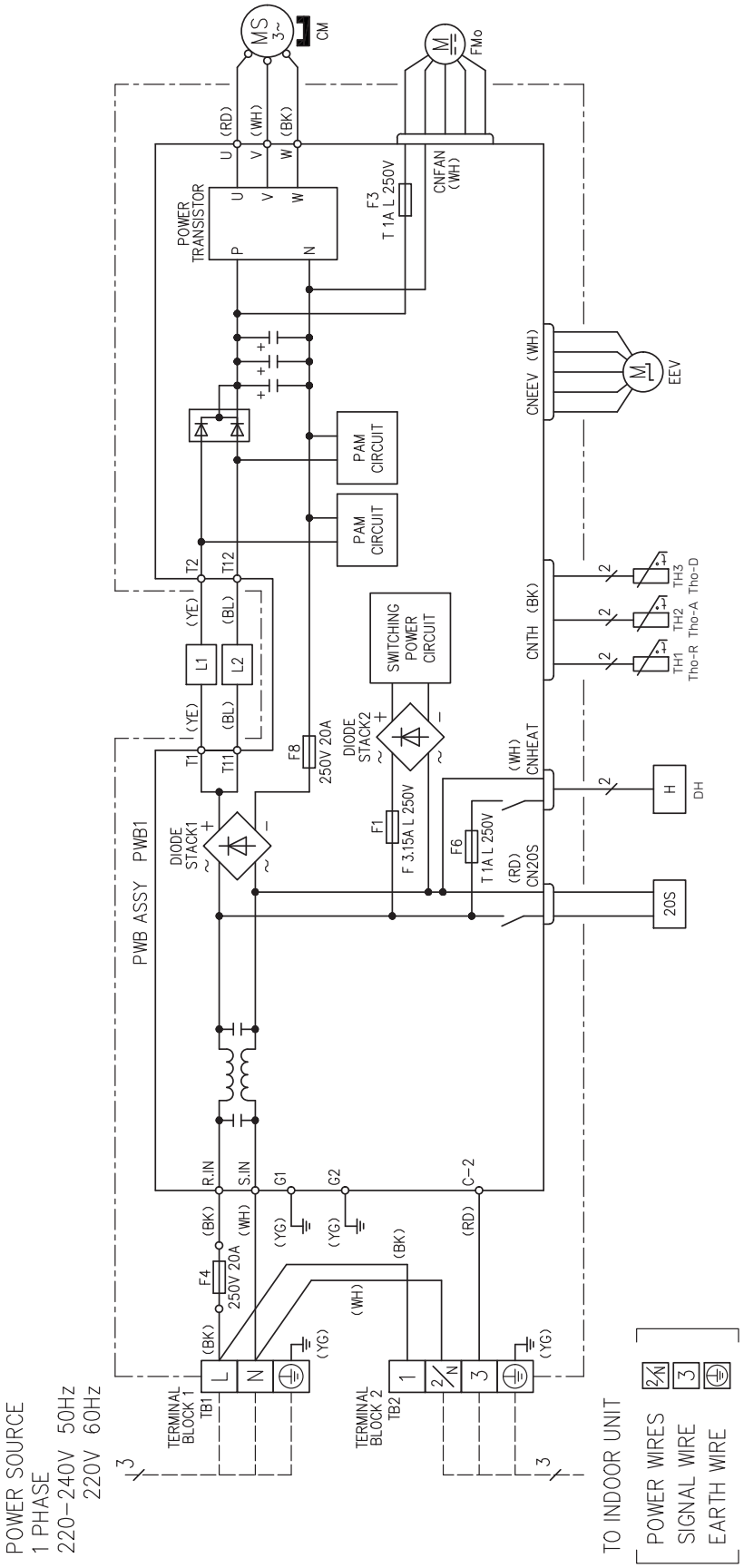
Model		F2050-12					
Type of heat pump		☒ Air-water ☐ Exhaust-water ☐ Brine-water ☐ Water-water					
Low-temperature heat pump		☐ Yes ☒ No					
Integrated immersion heater for additional heat		☐ Yes ☒ No					
Heat pump combination heater		☐ Yes ☒ No					
Climate		☒ Average ☐ Cold ☐ Warm					
Temperature application		☒ Medium (55°C) ☐ Low (35°C)					
Applied standards		EN 14825:2022 / EN 12102-1:2022					
Rated heat output	Prated	7.8	kW	*Seasonal space heating energy efficiency*	η_s	137	%
Declared capacity for space heating at part load and at outdoor temperature Tj				*Declared coefficient of performance for space heating at part load and at outdoor temperature Tj*			
Tj = -7 °C	Pdh	6.9	kW	Tj = -7 °C	COPd	2.00	-
Tj = +2 °C	Pdh	4.4	kW	Tj = +2 °C	COPd	3.45	-
Tj = +7 °C	Pdh	3.3	kW	Tj = +7 °C	COPd	4.85	-
Tj = +12 °C	Pdh	4.0	kW	Tj = +12 °C	COPd	6.90	-
Tj = biv	Pdh	6.9	kW	Tj = biv	COPd	2.00	-
Tj = TOL	Pdh	5.4	kW	Tj = TOL	COPd	1.40	-
Tj = -15 °C (if TOL < -20 °C)	Pdh		kW	Tj = -15 °C (if TOL < -20 °C)	COPd		-
Bivalent temperature	T_{biv}	-7	°C	Min. outdoor air temperature	TOL	-10	°C
Cycling interval capacity	Pcych		kW	Cycling interval efficiency	COPcyc		-
Degradation coefficient	Cdh	0.95	-	Max supply temperature	WTOL	60	°C
Power consumption in modes other than active mode				*Additional heat*			
Off mode	P_{OFF}	0.028	kW	Rated heat output	Psup	2.4	kW
Thermostat-off mode	P_{TO}	0.031	kW				
Standby mode	P_{SB}	0.031	kW	Type of energy input	Electric		
Crankcase heater mode	P_{CK}	0.000	kW				
Other items							
Capacity control	Variable			Rated airflow (air-water)		3,180	m³/h
Sound power level, indoors/outdoors	L_{WA}	- / 60	dB	Nominal heating medium flow			m³/h
Annual energy consumption	Q_{HE}	4,613	kWh	Brine flow brine-water or water-water heat pumps			m³/h
Contact information	*NIBE Energy Systems – Box 14 – Hannabadsvägen 5 – 285 21 Markaryd – Sweden*						

Model		F2050-16					
Type of heat pump		☒ Air-water ☐ Exhaust-water ☐ Brine-water ☐ Water-water					
Low-temperature heat pump		☐ Yes ☒ No					
Integrated immersion heater for additional heat		☐ Yes ☒ No					
Heat pump combination heater		☐ Yes ☒ No					
Climate		☒ Average ☐ Cold ☐ Warm					
Temperature application		☒ Medium (55°C) ☐ Low (35°C)					
Applied standards		EN 14825:2022 / EN 12102-1:2022					
Rated heat output	Prated	11.5	kW	*Seasonal space heating energy efficiency*	η_s	134	%
Declared capacity for space heating at part load and at outdoor temperature Tj				*Declared coefficient of performance for space heating at part load and at outdoor temperature Tj*			
Tj = -7 °C	Pdh	10.5	kW	Tj = -7 °C	COPd	2.06	-
Tj = +2 °C	Pdh	6.3	kW	Tj = +2 °C	COPd	3.18	-
Tj = +7 °C	Pdh	4.1	kW	Tj = +7 °C	COPd	4.83	-
Tj = +12 °C	Pdh	4.6	kW	Tj = +12 °C	COPd	7.42	-
Tj = biv	Pdh	10.5	kW	Tj = biv	COPd	2.06	-
Tj = TOL	Pdh	9.4	kW	Tj = TOL	COPd	1.79	-
Tj = -15 °C (if TOL < -20 °C)	Pdh		kW	Tj = -15 °C (if TOL < -20 °C)	COPd		-
Bivalent temperature	T_{biv}	-7	°C	Min. outdoor air temperature	TOL	-10	°C
Cycling interval capacity	Pcych		kW	Cycling interval efficiency	COPcyc		-
Degradation coefficient	Cdh	0.95	-	Max supply temperature	WTOL	60	°C
Power consumption in modes other than active mode				*Additional heat*			
Off mode	P_{OFF}	0.028	kW	Rated heat output	Psup	2.1	kW
Thermostat-off mode	P_{TO}	0.031	kW				
Standby mode	P_{SB}	0.031	kW	Type of energy input	Electric		
Crankcase heater mode	P_{CK}	0.000	kW				
Other items							
Capacity control	Variable			Rated airflow (air-water)		3,600	m³/h
Sound power level, indoors/outdoors	L_{WA}	- / 63	dB	Nominal heating medium flow			m³/h
Annual energy consumption	Q_{HE}	6,950	kWh	Brine flow brine-water or water-water heat pumps			m³/h
Contact information	*NIBE Energy Systems – Box 14 – Hannabadsvägen 5 – 285 21 Markaryd – Sweden*						

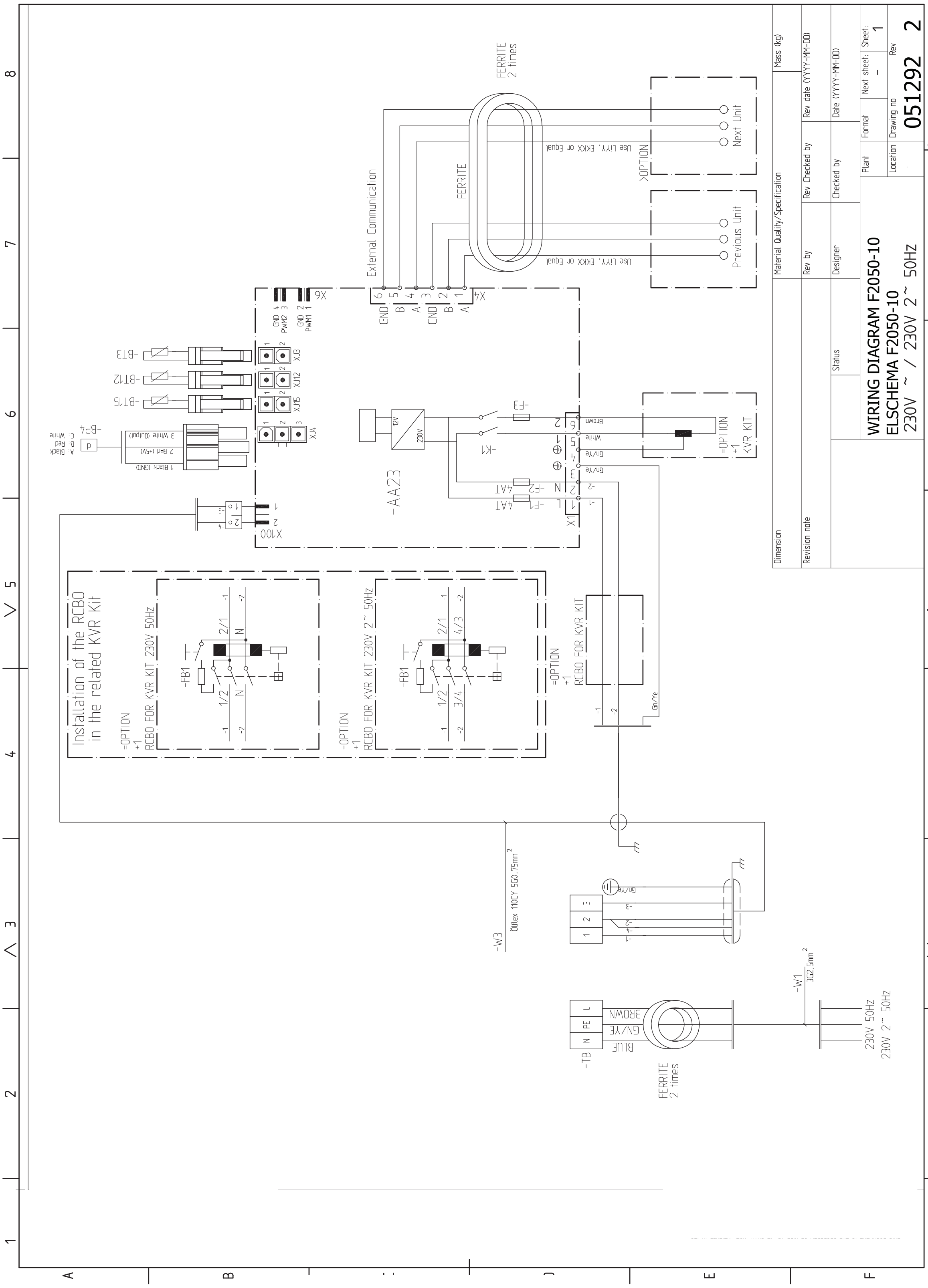
Electrical circuit diagram

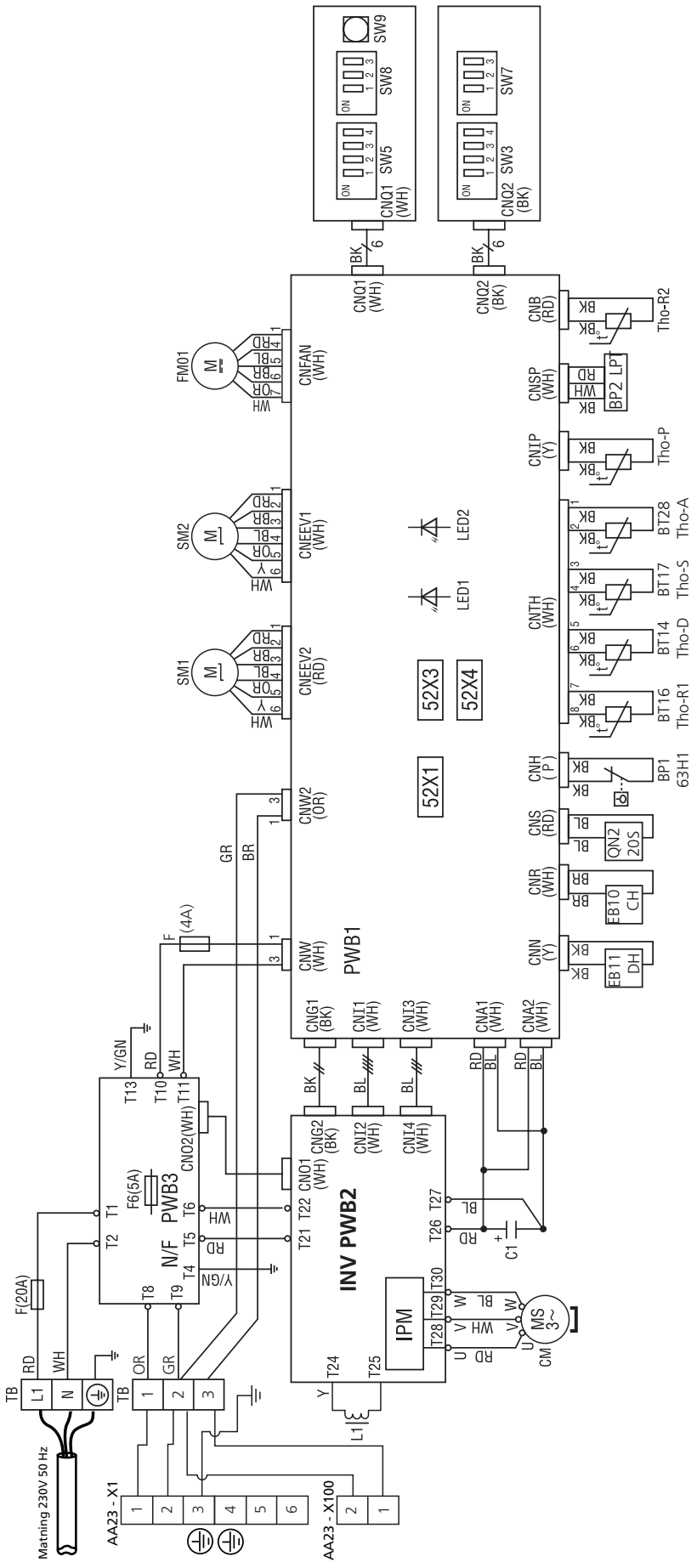
F2050-6



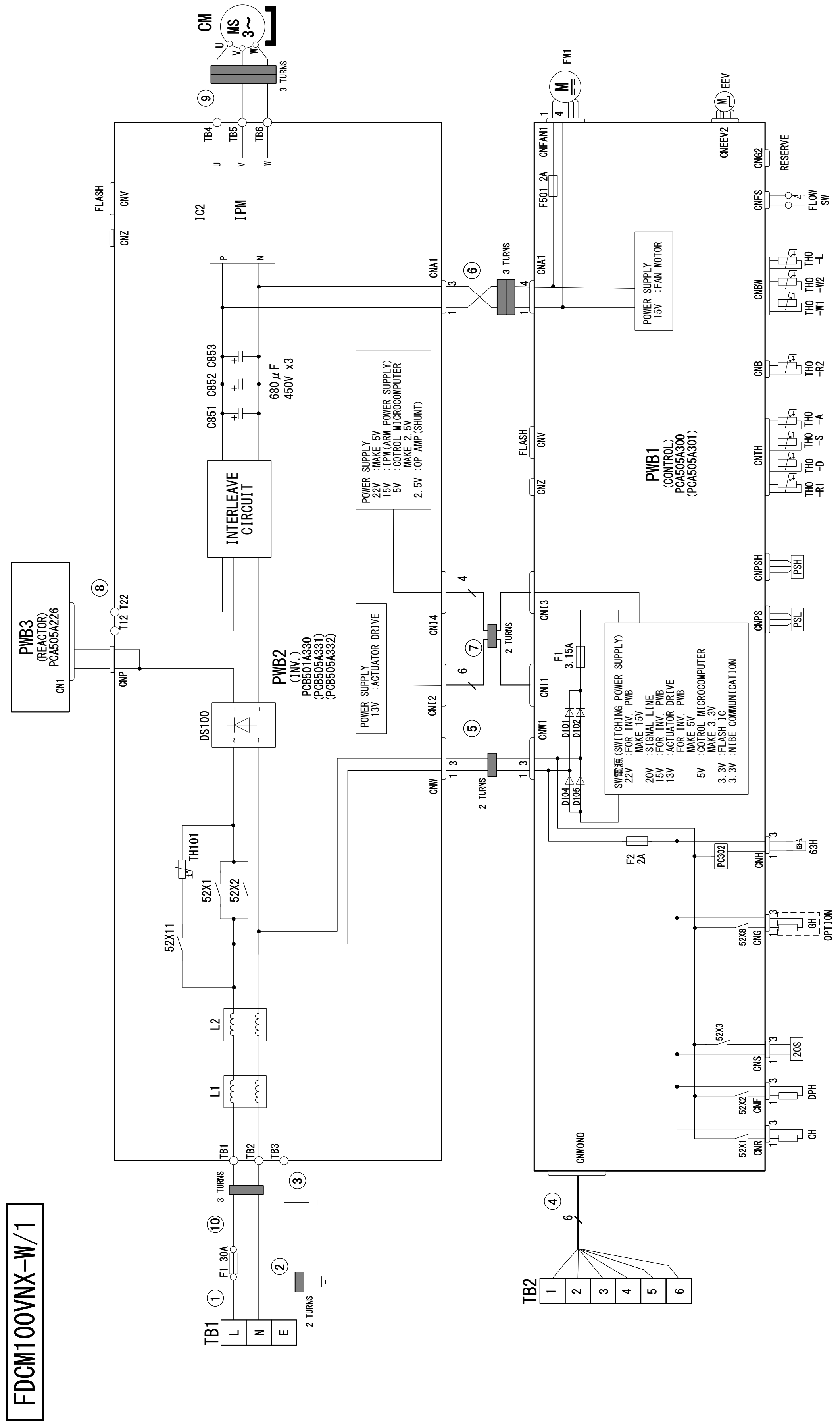

POWER SOURCE
1 PHASE
220–240V 50Hz
220V 60Hz
3
TERMINAL BLOCK 1 TB1
L
N
TERMINAL BLOCK 2 TB2
1
2/N
3
PWB ASSY PWB1
F4 250V 20A
F8 250V 20A
F1 F 3.15A L 250V
F6 T 1A L 250V
F3 T 1A L 250V
DIODE STACK1
DIODE STACK2
SWITCHING POWER CIRCUIT
PAM CIRCUIT
PAM CIRCUIT
POWER TRANSISTOR
L1
L2
T1
T11
T2
T12
R.IN
S.IN
G1
G2
C–2
MS 3~
CM
FMo
CNFAN (WH)
CNEEV (WH)
EEV
CNTH (BK)
TH1 Tho-R
TH2 Tho-A
TH3 Tho-D
CNHEAT (WH)
H
DH
CN20S (RD)
20S
(RD)
(WH)
(BK)
(YE)
(BL)
(YG)
TO INDOOR UNIT
POWER WIRES
SIGNAL WIRE
EARTH WIRE

F2050-10

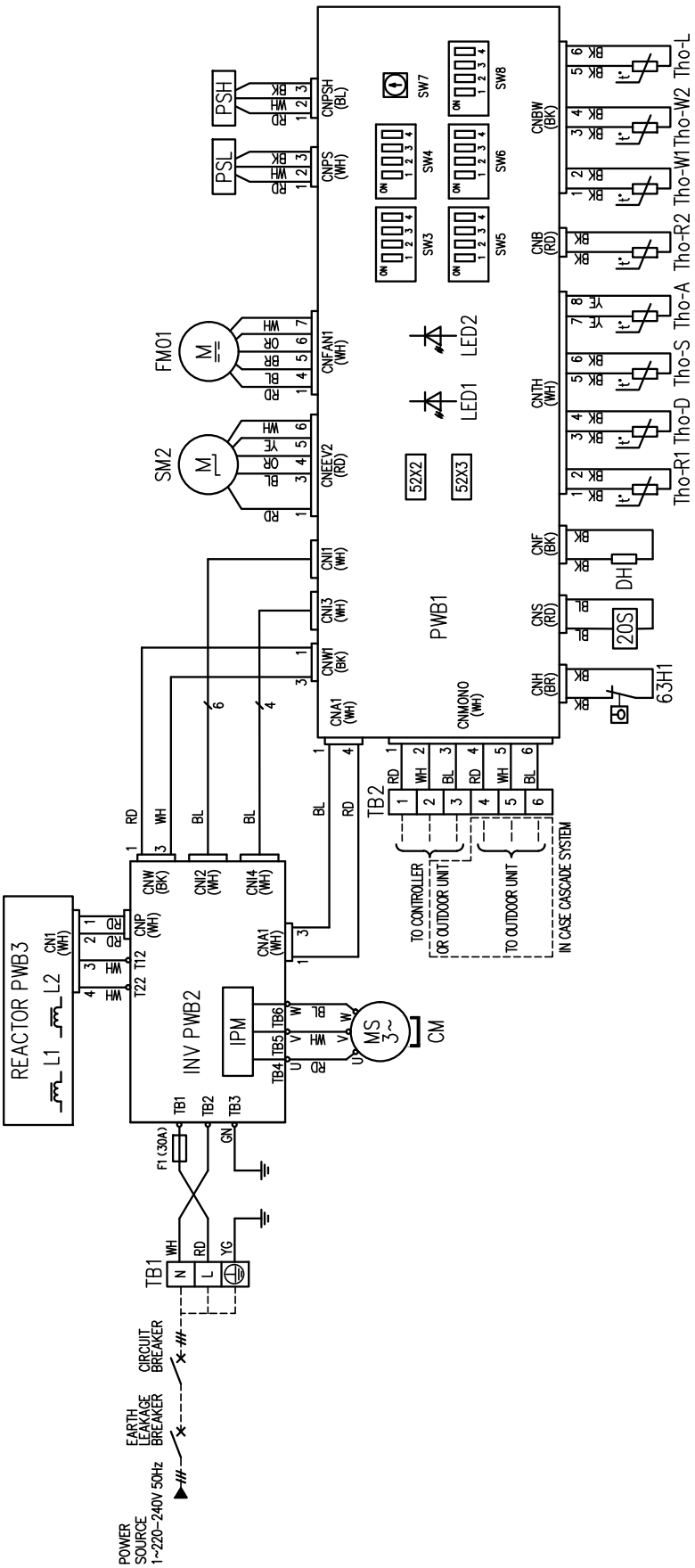

WIRING DIAGRAM F2050-10
ELSCHEMA F2050-10
230V ~ / 230V 2~ 50Hz
051292
2
External Communication
FERRITE
FERRITE 2 times
Next Unit
Previous Unit
Use LiYY, EKKX or Equal
-AA23
OPTION KVR KIT
Installation of the RCBO in the related KVR Kit
RCBO FOR KVR KIT 230V 50Hz
RCBO FOR KVR KIT 230V 2~ 50Hz
RCBO FOR KVR KIT
-W3
-W1
-TB
BROWN
GN/YE
BLUE
230V 50Hz
230V 2~ 50Hz


Matning 230V 50 Hz
AA23 - X1
AA23 - X100
F(20A)
F6(5A)
F(4A)
PWB3
N/F
INV PWB2
PWB1
IPM
MS 3~
C1
L1
SW9
SW8
SW5
SW7
SW3
CNQ1 (WH)
CNQ2 (BK)
CNFAN (WH)
CNEEV1 (WH)
CNEEV2 (RD)
CNW2 (OR)
CNW (WH)
CNG1 (BK)
CNI1 (WH)
CNI3 (WH)
CNA1 (WH)
CNA2 (WH)
CNO1 (WH)
CNG2 (BK)
CNI2 (WH)
CNI4 (WH)
CNO2(WH)
52X1
52X3
52X4
LED1
LED2
FM01
SM2
SM1
CNB (RD)
CNSP (WH)
CNTP (Y)
CNTH (WH)
CNH (P)
CNS (RD)
CNR (WH)
CNN (Y)
BP2 LPT
BP1
63H1
BT28
BT17
BT14
BT16
Tho-R2
Tho-P
Tho-A
Tho-S
Tho-D
Tho-R1
EB10 CH
EB11 DH
QN2 20S

F2050-12/-16



FDCM100VNX-W/1
TB1
L
N
E
F1 30A
3 TURNS
2 TURNS
PWB3
(REACTOR)
PCA505A226
CN1
CNP
T12
T22
L1
L2
52X11
52X1
52X2
TH101
DS100
INTERLEAVE CIRCUIT
C851 C852 C853
680μF 450V x3
IC2
IPM
TB4
TB5
TB6
CM
MS 3~
FLASH
CNV
CNZ
PWB2
(INV.)
PCB501A330
(PCB505A331)
(PCB505A332)
POWER SUPPLY
22V :MAKE 5V
15V :IPM(ARM POWER SUPPLY)
5V :COTROL MICROCOMPUTER
MAKE 2.5V
2.5V :OP AMP(SHUNT)
POWER SUPPLY
13V :ACTUATOR DRIVE
CNA1
CNI4
CNI2
CNW
PWB1
(CONTROL)
PCA505A300
(PCA505A301)
POWER SUPPLY
15V :FAN MOTOR
SW電源(SWITCHING POWER SUPPLY)
22V :FOR INV. PWB
MAKE 15V
20V :SIGNAL LINE
15V :FOR INV. PWB
13V :ACTUATOR DRIVE
FOR INV. PWB
MAKE 5V
5V :COTROL MICROCOMPUTER
MAKE 3.3V
3.3V :FLASH IC
3.3V :NIBE COMMUNICATION
F1 3.15A
F2 2A
F501 2A
D101
D102
D104
D105
CNFAN1
FM1
CNEEV2
EEV
CNG2
RESERVE
CNFS
FLOW SW
CNBW
THO -W1
THO -W2
THO -L
CNB
THO -R2
CNTH
THO -R1
THO -D
THO -S
THO -A
CNPSH
PSH
CNPS
PSL
CNI3
CNI1
CNW1
CNH
63H
PC302
CNG
52X8
GH
OPTION
CNS
52X3
20S
CNF
52X2
DPH
CNR
52X1
CH
CNMONO
TB2
1
2
3
4
5
6


POWER SOURCE 1~220~240V 50Hz
EARTH LEAKAGE BREAKER
CIRCUIT BREAKER
TB1
N
L
F1 (30A)
REACTOR PWB3
L1
L2
CN1 (WH)
CNP (WH)
INV PWB2
IPM
TB1
TB2
TB3
CNW (BK)
CNI2 (WH)
CNI4 (WH)
CNA1 (WH)
MS 3~
CM
TB2
TO CONTROLLER OR OUTDOOR UNIT
TO OUTDOOR UNIT
IN CASE CASCADE SYSTEM
PWB1
CNI1 (WH)
CNI3 (WH)
CNW1 (BK)
CNEEV2 (RD)
CNFAN1 (WH)
SM2
FM01
PSL
PSH
CNPS (WH)
CNPSH (BL)
SW3
SW4
SW5
SW6
SW7
SW8
52X2
52X3
LED1
LED2
CNTH (WH)
CNB (RD)
CNBW (BK)
CNF (BK)
CNS (RD)
CNH (BR)
CNMONO (WH)
DH
20S
63H1
Tho-R1
Tho-D
Tho-S
Tho-A
Tho-R2
Tho-W1
Tho-W2
Tho-L

Item register

A

Accessories, 46
Addressing via cascade connection, 34
Adjustment, charge flow, 37
Alarm list, 44
Ambient temperature sensor, 30
Areas with hard water, 25
Assembly, 9

B

Basic actions, 43

C

Cable routing, communication, 30–31
Cascade connection, 33
Charge pump, 27
Cleaning the climate system, 25
Commissioning and adjusting, 35
  Adjustment, charge flow, 37
  Compressor heater, 35
  Filling and venting the heating medium system, 35
  Preparations, 35
  Readjusting, heating medium side, 36
  Start-up and inspection, 36
Communication, 30
Compatible indoor modules and control modules, 8
Component placement
  Sensor placement, 22
Compressor heater, 35
Condensation, 11
Connecting accessories, 28
Connections, 30
Connection to board (AA23, 23
Connection to board (PWB1), 22
Connection to control module, 32
Connection to indoor module, 31–32
Control - Heat pump EB101, 38
Control – Heat pump EB101
  Heat pump settings – 5.11.1.1, 39
  Heat pump settings – Menu 7.3.2, 38
Country specific information, 5

D

Delivery and handling, 9
  Assembly, 9
  Condensation, 11
  Dismantling cardboard box, 14
  Dismantling panels, 13
  Installation area, 11
  Installing the plinth, 12
  Supplied components, 12
  Transport, 9
Dimensions and setting-out coordinates, 47
Dismantling cardboard box, 14
Dismantling panels, 13
Dismantling top panel, 13
Disruption to comfort
  Temperature sensor data, 40
Disturbances in comfort, 43
  Alarm list, 44
  Troubleshooting, 43
Docking alternatives, 28

E

Electrical circuit diagram, 61
Electrical connection, 20
Electrical connections, 29
  Addressing via cascade connection, 34
  Ambient temperature sensor, 30
  Cable routing, communication, 30–31
  Cascade connection, 33
  Communication, 30
  Connecting accessories, 28
  Connections, 30
  Connection to control module, 32
  Connection to indoor module, 31–32
  General, 29
  Power connection, 30
  Software version, 31
Energy labelling, 56
  Data for energy efficiency of the package, 56
  Information sheet, 56
  Technical documentation, 57

F

F2050 does not start, 43
F2050 not communicating, 43
Filling and venting the heating medium system, 35

G

General, 29

H

Heat pump settings – 5.11.1.1, 39
Heat pump settings – Menu 7.3.2, 38
High room temperature, 43

I

Important information, 4
  Compatible indoor modules and control modules, 8
  Country specific information, 5
  Inspection of the installation, 7
  Safety information, 4
  Serial number, 5
Inspection of the installation, 7
Installation area, 11
Installing the installation
  Symbol key, 26
Installing the plinth, 12

L

Large amount of water below F2050, 43
List of components, 19
Low hot water temperature or no hot water, 43
Low room temperature, 43

M

Marking, 4

P

Pipe connections, 25
  Charge pump, 27
  Docking alternatives, 28
  General, 25
    Areas with hard water, 25
    Cleaning the climate system, 25
  Pipe connections flex hose, 27
  Pipe coupling, heating medium, 26
  Pressure drop, heating medium side, 27
  Symbol key, 26
  Water volumes, 25
Pipe connections flex hose, 27

Pipe coupling, heating medium, 26
Power connection, 30
Preparations, 35
Pressure drop, heating medium side, 27

R

Readjusting, heating medium side, 36
Removing the front panel, 14

S

Safety information, 4
  Marking, 4
  Symbols, 4
  Warranty information, 5
Sensor placement, 22
  Connection to board (AA23, 23
  Connection to board (PWB1), 22
  Sensor placement in F2050, 24
  Sensors etc., 24
Sensor placement in F2050, 24
Sensors etc., 24
Serial number, 5
Service, 40
Service actions
  Temperature sensor data, 41
Software version, 31
Sound levels, 49
Start-up and inspection, 36
Supplied components, 12
Symbol key, 26
Symbols, 4

T

Technical data, 47
  Dimensions and setting-out coordinates, 47
  Electrical circuit diagram, 61
  Sound pressure levels, 49
  Technical Data, 50
Technical Data, 50
Temperature sensor data, 40–41
The heat pump design, 15
  Component locations, 15
  Electrical components, 21
  Electrical connection, 20
  List of components, 19
Transport, 9
Troubleshooting, 43
  Basic actions, 43
  F2050 does not start, 43
  F2050 not communicating, 43
  High room temperature, 43
  Large amount of water below F2050, 43
  Low hot water temperature or no hot water, 43
  Low room temperature, 43

W

Warranty information, 5

AIR TO WATER HEAT PUMP COMMISSIONING CHECKLIST

This Commissioning Checklist is to be completed in full by the competent person who commissioned the heat pump and associated equipment as a means of demonstrating compliance with the appropriate Building Regulations and then handed to the customer to keep for future reference.

Failure to install and commission this equipment to the manufacturer's instructions may invalidate the warranty but does not affect statutory rights.

Customer Name

Address

Telephone Number

Heat Pump Make and Model

Heat Pump Serial Number

Commissioned by (print name) | Certified Operative Reg. No. [1]

Company Name & Address | Commissioning Date

Telephone No.

Building Regulations Notification Number (if applicable) [2]

CONTROLS - SYSTEM AND HEAT PUMP

Tick the appropriate boxes if applicable

1.	Time & Temperature Control to Heating	Room Thermostat & Programmer/Timer ☐	Programmable Roomstat ☐	Load/Weather Compensation ☐	Optimum Start Control ☐		
2.	Time & Temperature Control to Hot Water			Cylinder Thermostat & Programmer/Timer ☐	Combined with Heat pump main controls ☐		
3.	Heating Zone Valves			Fitted ☐	Not Required ☐		
4.	Hot Water Zone Valves			Fitted ☐	Not Required ☐		
5.	Thermostatic Radiator Valves			Fitted ☐	Not Required ☐		
6.	Heat Pump Safety Interlock [3]			☐	Provided ☐		
7.	Outdoor Sensor			Fitted ☐	Not Required ☐		
8.	Automatic Bypass System			Fitted ☐	Not Required ☐		
9.	Buffer Vessel Fitted			Yes ☐	No ☐	If YES, Volume ☐ Litres	

ALL SYSTEMS

The heating system has been filled and pressure tested — Yes ☐

Expansion vessel for heating is sized, fitted & charged in accordance with manufacturer's instructions — Yes ☐

The heat pump is fitted on a solid/stable surface capable of taking its weight — Yes ☐

The system has been flushed and cleaned in accordance with BS7593 and heat pump manufacturer's instructions — Yes ☐

What system cleaner was used?

What inhibitor was used? — Qty litres ☐

Is the system adequately frost protected? — Yes ☐

OUTDOOR COLLECTOR

Are all external pipeworks insulated? — Yes ☐

Is the fan free from obstacles and operational? — Yes ☐

Has suitable consideration been made for waste water discharge? — Yes ☐

CENTRAL HEATING MODE

Heating Flow Temperature ☐ °C Heating Return Temperature ☐ °C

DOMESTIC HOT WATER MODE

Is the heat pump connected to a hot water cylinder? ☐ Unvented ☐ Vented ☐ Thermal Store ☐ Not Connected

Hot water has been checked at all outlets — Yes ☐

ADDITIONAL SYSTEM INFORMATON

Additional heat sources connected

☐ Gas Boiler ☐ Oil Boiler ☐ Electric Heater Other

ALL INSTALLATIONS

The heating, hot water and ventilation systems complies with the appropriate Building Regulations — Yes ☐

All electrical work complies with the appropriate Regulations — Yes ☐

The heat pump and associated products have been installed and commissioned in accordance with the manufacturer's instructions — Yes ☐

The operation of the heat pump and system controls have been demonstrated to the customer — Yes ☐

The manufacturer's literature, including Benchmark Checklist and Service Record, has been explained and left with the customer — Yes ☐

Commissioning Engineer's Signature

Customer's Signature

(To confirm demonstration of equipment and receipt of appliance instructions)

Notes: [1] Installers should be members of an appropriate Competent Persons Scheme. [2] All installations in England and Wales must be notified to Local Area Building Control (LABC) either directly or through a Competent Persons Scheme. A Building Regulations Compliance Certificate will then be issued to the customer. [3] May be required for systems covered by G3 Regulations

benchmark COLLECTIVE MARK
THE MARK OF QUALITY FOR THE INSTALLATION, COMMISSIONING AND SERVICING OF DOMESTIC HEATING AND HOT WATER SYSTEMS

www.centralheating.co.uk

Service Record

It is recommended that your heating system is serviced regularly and that the appropriate Service Interval Record is completed.

Service Provider

Before completing the appropriate Service Interval Record below, please ensure you have carried out the service as described in the manufacturer's instructions.

Always use the manufacturer's specified spare part when replacing controls.

Service 1 Date:

Engineer Name:

Company Name:

Telephone No.

Operative ID No.

Comments:

Signature:

Service 2 Date:

Engineer Name:

Company Name:

Telephone No.

Operative ID No.

Comments:

Signature:

Service 3 Date:

Engineer Name:

Company Name:

Telephone No.

Operative ID No.

Comments:

Signature:

Service 4 Date:

Engineer Name:

Company Name:

Telephone No.

Operative ID No.

Comments:

Signature:

Service 5 Date:

Engineer Name:

Company Name:

Telephone No.

Operative ID No.

Comments:

Signature:

Service 6 Date:

Engineer Name:

Company Name:

Telephone No.

Operative ID No.

Comments:

Signature:

Service 7 Date:

Engineer Name:

Company Name:

Telephone No.

Operative ID No.

Comments:

Signature:

Service 8 Date:

Engineer Name:

Company Name:

Telephone No.

Operative ID No.

Comments:

Signature:

Service 9 Date:

Engineer Name:

Company Name:

Telephone No.

Operative ID No.

Comments:

Signature:

Service 10 Date:

Engineer Name:

Company Name:

Telephone No.

Operative ID No.

Comments:

Signature:

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nibe.co.uk

IHB EN 2426-2 731658

731658