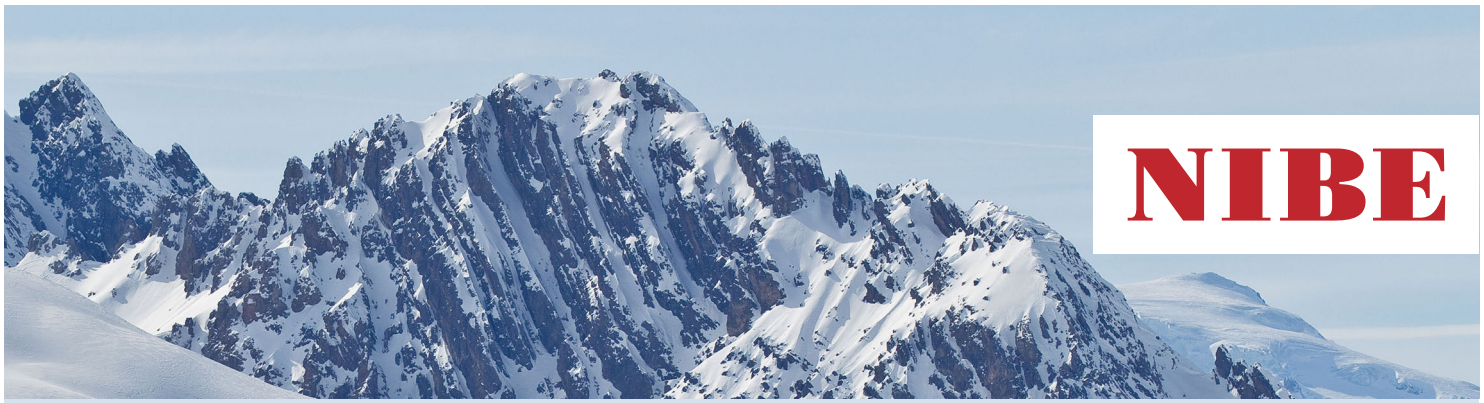


Ground source heat pump
NIBE F1145

NIBE F1145 is an efficient heat pump without integrated hot water tank, which makes it easy to install in locations with low ceilings. A separate hot water tank is selected according to hot water requirements.

NIBE F1145 has high seasonal efficiency and a high temperature range. NIBE F1145 is available in the following output sizes: 5, 6, 8, 10, 12, 15 and 17 kW, and is therefore suitable for both apartments and houses.

Thanks to smart technology, the product gives you control over your energy consumption and will be a key part of your connected home. The efficient control system automatically adjusts the indoor climate for maximum comfort, and you do nature a favour at the same time.

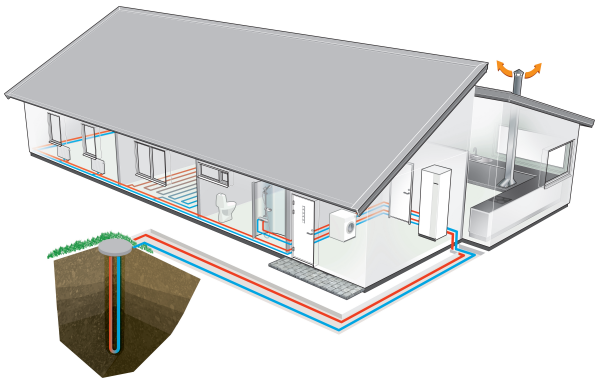
- **Efficient, easy-to-install heat pump where the hot water tank is selected according to requirements.**
- **High seasonal efficiency – high temperature range.**
- **Energy-saving smart technology and user-friendly control.**

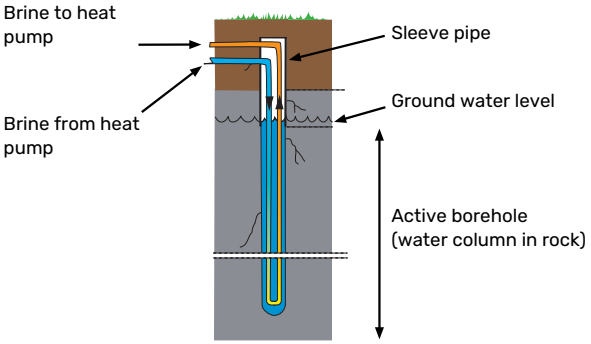
This is how F1145 works

Installation method

Rock

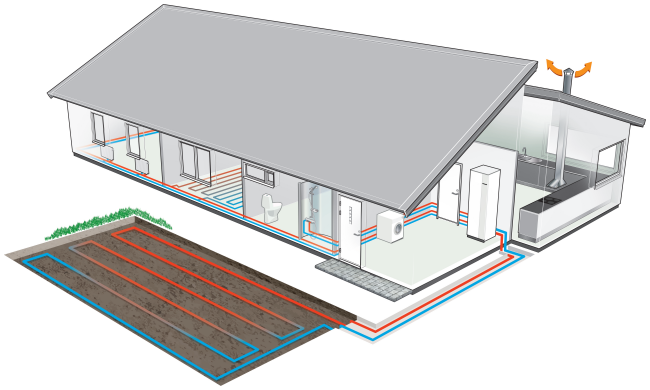
F1145 collects a proportion of the rock's stored solar energy via a collector in a borehole in the rock.





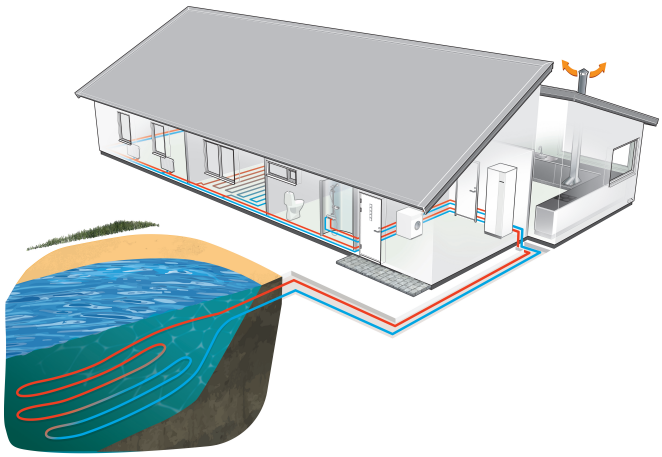
Ground

F1145 collects a proportion of the ground's stored solar energy via a buried ground collector.



Lake

F1145 collects a proportion of the water's stored solar energy via a lake collector that is anchored on the lake bed.



Design

F1145 has a 7 kW immersion heater, with seven steps that connect automatically when needed. This can be switched to four steps of 9 kW.

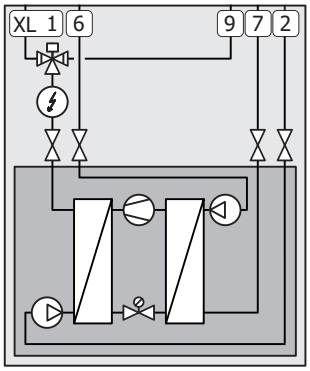
F1145 is constructed on a robust frame with durable panels and effective soundproofing for the best possible comfort. All panels are easy to remove to facilitate installation and for any servicing.

Principle of operation

F1145 consists of a cooling module, an immersion heater, circulation pumps and a control system. F1145 is connected to the brine and heating medium circuits.

The heat from the heat source (rock, soil, lake) is taken up via a closed brine system in which a mixture of water and antifreeze circulates. In some cases, the ground water can also be used as a heat source. An intermediate heat exchanger should be used to protect the heat pump in such cases.

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



XL1	Connection, heating medium flow
XL2	Connection, heating medium return
XL6	Connection, brine in
XL7	Connection, brine out
XL9	Connection, hot water heater

Good to know about F1145

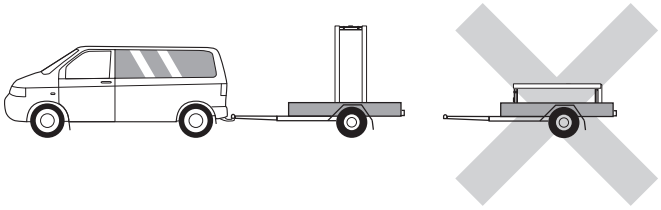
Transport and storage

F1145 should be transported and stored vertically in a dry place. When being moved into a building, F1145 may be leant back 45 °.

The product can be tail heavy.

If the cooling module is pulled out and transported upright, F1145 can be transported on its back.

Remove the outer panels in order to protect them when moving in confined spaces inside buildings.



EXTRACTING THE COOLING MODULE

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

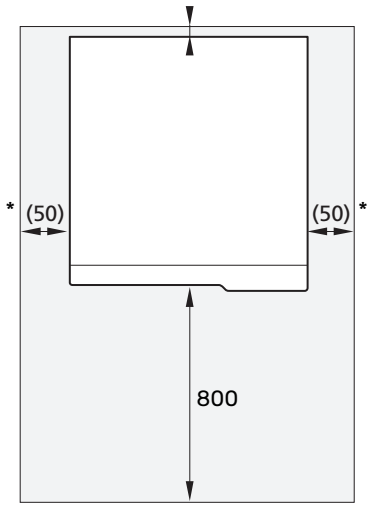
See section "Service" in the installer manual for comprehensive instructions about the separation.

Installation and positioning

- Position F1145 on a solid foundation indoors that withstands water and the weight of the product.
- Since water comes from F1145, the area where F1145 is located must be equipped with floor drainage.
- Install with its back to an outside wall, ideally in a room where noise does not matter, in order to eliminate noise problems. If this is not possible, avoid placing it against a wall behind a bedroom or other room where noise may be a problem.
- Wherever the unit is located, walls to sound sensitive rooms should be fitted with sound insulation.

INSTALLATION AREA

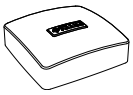
Leave a free space of 800 mm in front of the product. Approx. 50 mm free space is required on each side to allow the side panels to be removed. All service on F1145 can be carried out from the front, however the right-hand panel may need to be removed. Leave free space between the heat pump and the wall behind (and any routing of supply cables and pipes), to reduce the risk of any vibrations being propagated.



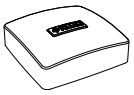
* A normal installation needs 300 – 400 mm (any side) for connection equipment, e.g. level vessel, valves and electrical equipment.

Supplied components

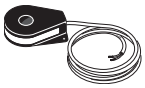
Local differences in the enclosed kit may occur. See relevant installer manual for more information.



Outdoor temperature sensor
1 x



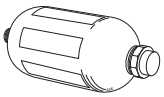
Room sensor
1 x



Current sensor [1]
3 x

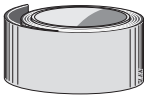
O-rings
8 x

Temperature sensor
3 x

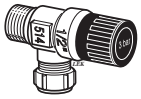


Level vessel [1] [2]
1 x

Aluminium tape
1 x



Insulation tape
1 x



Safety valve
0.3 MPa (3 bar)
1 x

Particle filter

6–10 KW
1 x G1
1 x G3/4

12–17 KW
1 x G1
1 x G1 1/4

Compression ring couplings

6-10 KW
2 x (ø28 x G25)
3 x (ø22 x G20)

12-15 KW
5 x (ø28 x G25)

17 KW
3 x (ø28 x G25)
2 x (ø35 x G32)

1 Not Italy and the DACH countries.
2 Not Denmark

Installation

Inspection of the installation

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

Pipe installation

Pipe installation must be carried out in accordance with current norms and directives. F1145 can operate with a return temperature of up to 58 °C and an outgoing temperature from the heat pump of 70 (65 °C with only the compressor).

Water may drip from the safety valve's overflow pipe. The overflow pipe must be routed to a suitable drain, to prevent hot water splashes from causing harm. The overflow pipe must be inclined along its entire length to prevent pockets where water can accumulate, and must be frost-proof. The overflow pipe must be at least the same size as the safety valve. The overflow pipe must be visible and its mouth must be open and not placed close to electrical components.

BRINE

The brine transports energy from a source to the heat pump using a liquid consisting of water mixed with antifreeze. The brine must be mixed to ensure that the freezing point is lower than -15 °C.

Insulate all indoor brine pipes against condensation.

Mark the brine system with the antifreeze that is used.

Install as follows:

- enclosed level vessel /expansion vessel

  The level vessel must be installed as the highest point in the brine system on the incoming pipe before the brine pump (Alternative 1). If the level vessel cannot be placed at the highest point, an expansion vessel must be used (Alternative 2).

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

  The safety valve is fitted below the level vessel.
- pressure gauge

  The pressure gauge is only required if an expansion vessel is used.
- shut-off valves

  Install the shut-off valves as close to F1145 as possible.
- vent valve

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

Side connection

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

CLIMATE SYSTEM

A climate system is a system that regulates indoor comfort with the help of the control system in F1145 and for example radiators, underfloor heating/cooling, fan convectors etc.

- Install all required safety devices, shut-off valves (as close to the heat pump as possible), and supplied particle filter.
- Install safety valve. The recommended opening pressure is 0.25 MPa (2.5 bar). For information about max. opening pressure, see the technical specifications.
- When connecting to a system with thermostats on all radiators (or underfloor heating coils), either a bypass valve must be fitted or some of the thermostats must be removed to ensure there is sufficient flow.

COLD AND HOT WATER

Any docked hot water heater must be fitted with necessary set of valves.

-
- A mixer valve must also be installed, if the factory setting for hot water is changed. National regulations must be observed.
- The safety valve must have max. 1.0 MPa (10.0 bar) opening pressure, and be installed on the incoming domestic water line.

Ensure that incoming water is clean. When using a private well, it may be necessary to supplement with an extra water filter.

For more information see nibe.eu.

Guideline values for collectors

The length of the collector hose varies depending on the rock/soil conditions, climate zone and on the climate system (radiators or underfloor heating) and the heating requirement of the building Each installation must be sized individually.

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

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

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

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

Because the temperature of the brine system can fall below 0 °C, it must be protected against freezing down to -15 °C. When making the volume calculation, use 1 litres of ready mixed brine per metre of collector hose (applies when using PEM-hose 40x2.4 PN 6.3) as a guide value.

Installation alternative

VENTILATION RECOVERY

The installation can be supplemented with the exhaust air module NIBE FLM to provide ventilation recovery. NIBE FLM is equipped with a built-in fan specially designed to combine recovery of mechanical exhaust air with an energy collector in rock or in the ground.

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

FREE COOLING

The accessory PCS 44 allows the connection of passive cooling, for example with fan coils. The cooling system is connected to the heat pump brine circuit, whereby cooling is supplied from the collector via a circulation pump and shunt valve.

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

TWO OR MORE CLIMATE SYSTEMS

In buildings with several climate systems that require different supply temperatures, the accessory ECS 40/ECS 41 can be connected.

A shunt valve then lowers the temperature to the underfloor heating system, for example.

POOL

With the POOL 40 accessory, you can heat the pool with your system.

During pool heating, the heating medium circulates between the F1145 and the pool exchanger using the heat pump's internal circulation pump.

Functions

Control, general

The indoor temperature depends on several different factors. Sunlight and heat emissions from people and household machines are normally sufficient to keep the house warm during the warm seasons. When it gets colder outside, the climate system needs to help heat the house. The colder it is outside, the warmer radiators and underfloor heating systems have to be.

The heat pump is controlled by built-in supply and return brine temperature sensors (collector). Brine return temperatures can, if necessary, be limited to a minimum e.g. for ground water systems.

Control of the heat production is performed based on the "floating condensing" principle, which means that the temperature level needed for heating at a specific outdoor temperature is produced based on collected values from the outdoor and supply temperature sensors. The room sensor can also be used to compensate the deviation in room temperature.

Heat production

The supply of heat to the house is regulated in accordance with the heating curve selected setting. After adjustment, the correct quantity of heat for the current outdoor temperature is supplied. The supply temperature will oscillate around the theoretically desired value. To reduce the oscillation in the supply temperature, it is appropriate to select grouped heating control of compressors.

OWN CURVE

F1145 has pre-programmed non-linear heating curves. It is also possible to create your own defined curve. This is an individual linear curve with a number of break points. You select break points and the associated temperatures.

Hot water production

If the water heater is docked to F1145 and there is a hot water demand, the heat pump's software control prioritizes the hot water charging mode with optimal heat pump power.

Hot water charging starts when the temperature has fallen to the set start temperature. Hot water charging stops when the hot water temperature at the hot water sensor has been reached.

For temporary higher hot water demand, there is a function that allows the temperature to be raised temporarily for up to 12 hours or by a one time increase (can be selected in the menu system).

It is also possible to set F1145 in holiday mode, which means that the lowest possible temperature is achieved without the risk of freezing.

Master/slave

Several heat pumps can be interconnected, by selecting one heat pump as the master and the others as slaves.

The heat pump is always delivered as master and up to 8 slaves can be connected to it. In systems with several heat pumps, each pump must have a unique name, i.e. only one heat pump can be "Master" and only one can be, for example, "Slave 5".

Additional heat only

F1145 can be used exclusively as an additional heater, (max 9 kW) to produce heat and any hot water, for example before the collector system is complete.

Alarm indications

The status lamp lights red in the event of an alarm and the display shows detailed information depending on the fault. An alarm log is created with each alarm containing a number of temperatures, times and operating status.

Floor drying

F1145 has an integrated underfloor drying function. This allows for controlled drying of concrete slabs. It is possible to create your own program or to follow a pre-programmed time and temperature schedule.

myUplink

With myUplink you can control the installation – where and when you want. In the event of any malfunction, you receive an alarm directly to your e-mail or a push notification to the myUplink app, which allows you to take prompt action.

Visit myuplink.com for more information.

SPECIFICATION

You need the following in order for myUplink to be able to communicate with your F1145:

- network cable
- Internet connection
- account on myuplink.com

We recommend our mobile apps for myUplink.

RANGE OF SERVICES

myUplink gives you access to various levels of service. The base level is included and, apart from this, you can choose two premium services for a fixed annual fee (the fee varies depending on the functions selected).

Service level	Basic	Premium extended history	Premium change settings
Viewer	X	X	X
Alarm	X	X	X
History	X	X	X
Extended history	-	X	-
Manage	-	-	X

MOBILE APPS FOR MYUPLINK

The mobile apps can be downloaded free of charge from where you usually download your mobile apps. Logging into the mobile app is performed using the same account details as on myuplink.com.

MYUPLINK PRO

myUplink PRO is a complete tool for offering service agreements to the end customer and for always having the latest information about the installation, as well as the option to adjust settings remotely.

With myUplink PRO, you can provide your connected customers with rapid status and remote diagnostics.

Visit pro.myuplink.com for information about what else you can do using the mobile app and online.

NIBE SMART PRICE ADAPTION™

Smart Price Adaption is not available in all countries. Contact your NIBE dealer for more information.

Smart Price Adaption adjusts the system's consumption according to the time of day when electricity prices are lowest. This allows for savings, provided that an hourly rate subscription has been signed with the electricity supplier.

The function is based on hourly rates for the coming day being downloaded via myUplink. To use the function, an Internet connection and account on myUplink are necessary.

SMART HOME

When you have a smart home system that can communicate with myUplink, you can control the installation via an app by activating the "smart home" function.

By allowing connected units to communicate with myUplink, your heating system becomes a natural part of your homesmart home and gives you the opportunity to optimise the operation.

Remember that the "smart home" function requires myUplink in order to work.

NIBE SMART ENERGY SOURCE™

Smart Energy Source™ prioritises how / to what extent each docked energy source will be used. Here you can choose if the system is to use the energy source that is cheapest at the time. You can also choose if the system is to use the energy source that is most carbon neutral at the time.

The display

F1145 is controlled using a clear and easy to use display.

Instructions, settings and operational information are shown on the display. You can easily navigate between the different menus and options to set the comfort or obtain the information you require.

The display unit is equipped with a USB socket that can be used to update the software and save logged information in F1145.

Visit myuplink.com and click the "Software" tab to download the latest software for your installation.

Accessories

Not all accessories are available on all markets.

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

ACTIVE/PASSIVE COOLING IN 4-PIPE SYSTEM ACS 45

ACS 45 is an accessory that makes it possible for your heat pump to control the production of heating and cooling independently of each other.

ENERGY MEASUREMENT KIT EMK 300

This accessory is installed externally and used to measure the amount of energy that is supplied to the hot water/heating/cooling for the house.

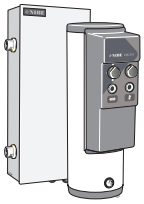
Cu pipe Ø22.

EXTERNAL ELECTRIC ADDITIONAL HEAT ELK

These accessories require accessories card AXC 40 (step controlled addition).

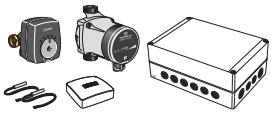
ELK 15
15 kW, 3 x 400 V

ELK 213
7–13 kW, 3 x 400 V



EXTRA SHUNT GROUP ECS

This accessory is used when F1145 is installed in houses with two or more different climate systems that require different supply temperatures.

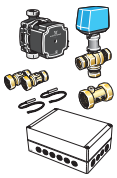


ECS 40
Max 80 m²

ECS 41
Approx. 80-250 m²

FREE COOLING PCS 44

This accessory is used when F1145 is installed in an installation with passive cooling.

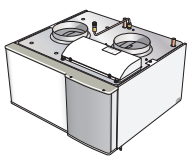


HUMIDITY SENSOR HTS 40

This accessory is used to show and regulate humidity and temperatures during both heating and cooling operation.

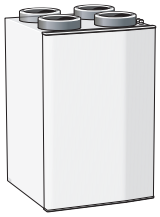
EXHAUST AIR MODULE NIBE FLM

NIBE FLM is an exhaust air module designed to combine recovery of mechanical exhaust air with ground source heating.



HRV UNIT ERS

This accessory is used to supply the accommodation with energy that has been recovered from the ventilation air. The unit ventilates the house and heats the supply air as necessary.

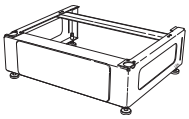


ERS S10-400[1] **ERS 30-400**[2]

1 A preheater may be required.
2 A preheater may be required.

BASE EXTENSION EF 45

This accessory can be used to create a larger area under F1145.



AUXILIARY RELAY

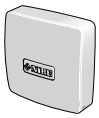
Auxiliary relay is used to control external 1 to 3 phase loads, such as, for example, oil burners, immersion heaters and circulation pumps.

HR 20

Recommended max fuse for control current 20 A.

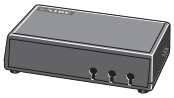
COMMUNICATION MODULE FOR SOLAR ELECTRICITY EME 20

EME 20 is used to enable communication and control between inverters for solar cells from NIBE and F1145.



COMMUNICATIONS MODULE MODBUS 40

MODBUS 40 enables F1145 to be controlled and monitored using a DUC (computer sub-centre) in the building.



MEASUREMENT KIT FOR SOLAR GENERATED ELECTRICITY EME 10

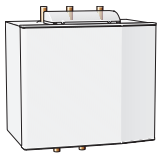
EME 10 is used to optimise the use of solar generated electricity. EME 10 measures the relevant current from the inverter via a current transformer and can work with all inverters.

LEVEL MONITOR NV 10

Level monitor for extended checks of the brine level.

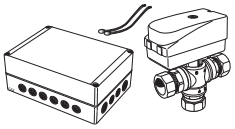
PASSIVE COOLING PCM S40/PCM S42

PCM S40/PCM S42 makes it possible to obtain passive cooling from rock, ground water or surface soil collectors.



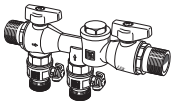
POOL HEATING POOL 40

POOL 40 is used to enable pool heating with F1145.



FILLING VALVE KIT KB

Valve kit for filling brine in the collector hose. Includes particle filter and insulation.



ROOM UNIT RMU 40

The room unit is an accessory with a built-in room sensor, which allows the control and monitoring of F1145 to be carried out in a different part of your home to where it is located.

SOLAR PACKAGE NIBE PV

NIBE PV is a modular system comprising solar panels, assembly parts and inverters, which is used to produce your own electricity.

ACCESSORY CARD AXC 40

This accessory is used to enable connection and control of shunt controlled additional heat, step controlled additional heat, external circulation pump or ground water pump.

BUFFER VESSEL UKV

A buffer vessel is an accumulator tank that is suitable for connection to a heat pump or another external heat source, and can have several different applications.

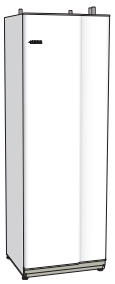
WATER HEATER/ACCUMULATOR TANK

AHPS

Accumulator tank without an immersion heater with a solar coil (copper corrosion protection) and a hot water coil (stainless steel corrosion protection).

AHP

Volume expansion vessel that is primarily used for expanding the volume together with AHPS.



AHPH

Accumulator tank without an immersion heater with an integrated hot water coil (stainless steel corrosion protection).

Technical specifications

PUMP CAPACITY DIAGRAM

Brine side

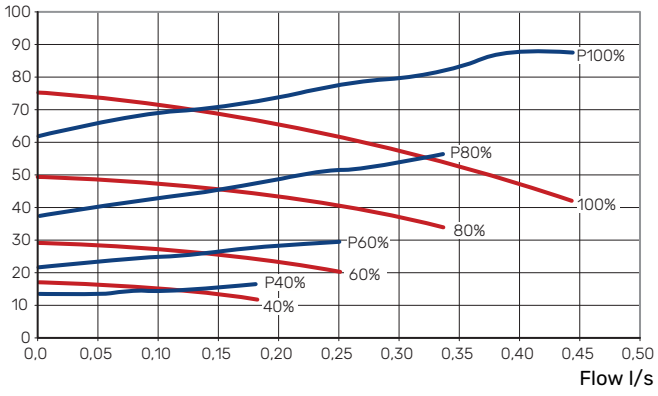
To set the correct flow in the brine system, the brine pump must run at the correct speed. F1145 has a brine pump that is controlled automatically in standard mode.

For optimum operation when several heat pumps are installed in a multi-installation, all heat pumps should have the same compressor size.

External available pressure, kPa
Electrical power, W

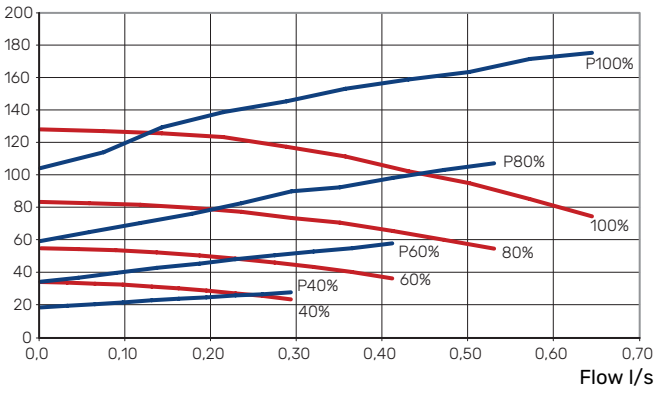
F1145 6 and 8 kW

Available pressure, kPa
Electrical output, W



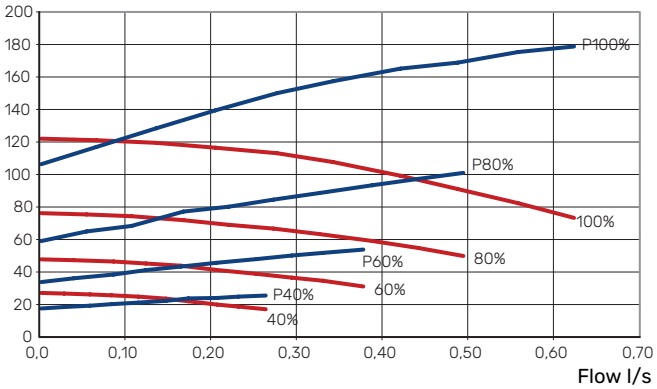
F1145 10 kW

Available pressure, kPa
Electrical output, W



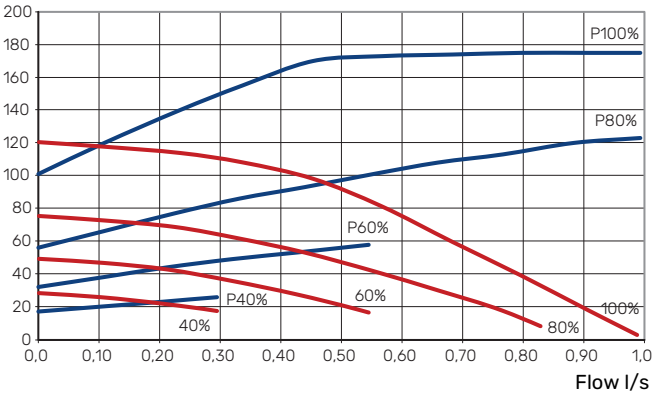
F1145 12 kW

Available pressure, kPa
Electrical output, W



F1145 15 and 17 kW

Available pressure, kPa
Electrical output, W



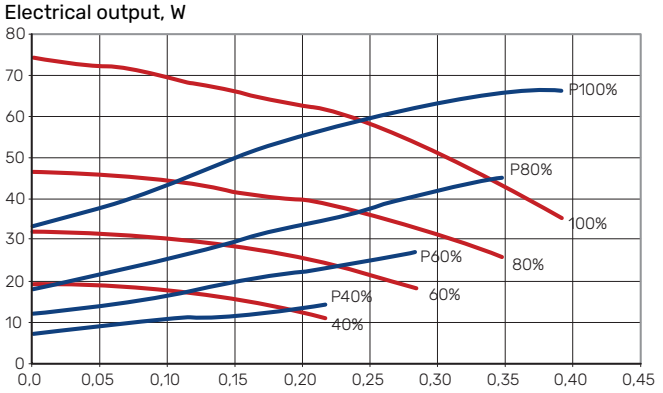
Climate system

To set the correct flow in the climate system, the heating medium pump must run at the correct speed. F1145 has a heating medium pump that can be automatically controlled in standard mode.

External available pressure, kPa
Electrical power, W

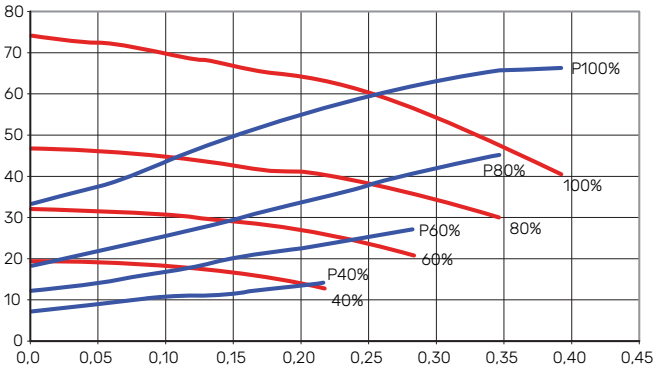
F1145 6 kW

Available pressure, kPa
Electrical output, W



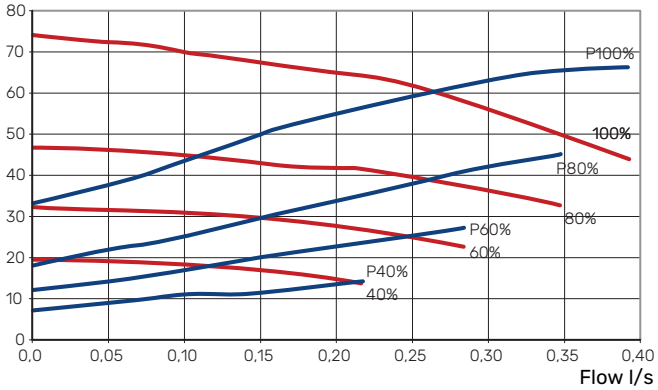
F1145 8 and 12 kW

Available pressure, kPa
Electrical output, W



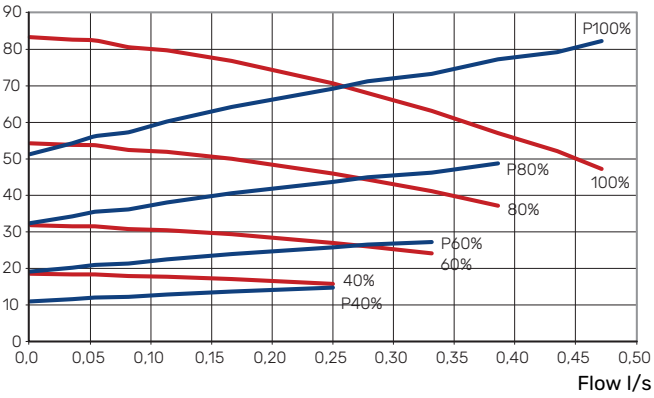
F1145 10 kW

Available pressure, kPa
Electrical output, W



F1145 15 and 17 kW

Available pressure, kPa
Electrical output, W

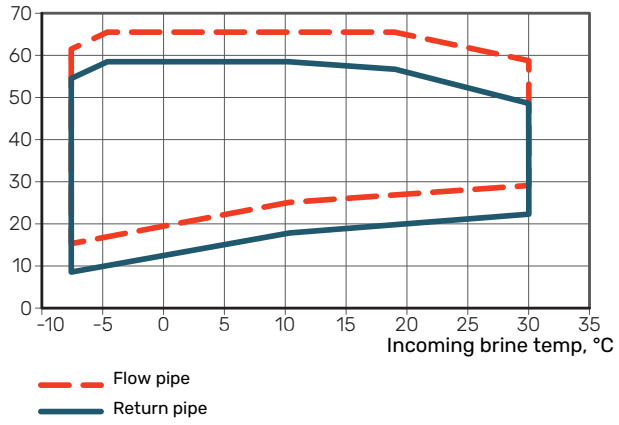


WORKING RANGE HEAT PUMP, COMPRESSOR OPERATION

The compressor provides a supply temperature up to 65 °C at 0 °C incoming brine temperature.

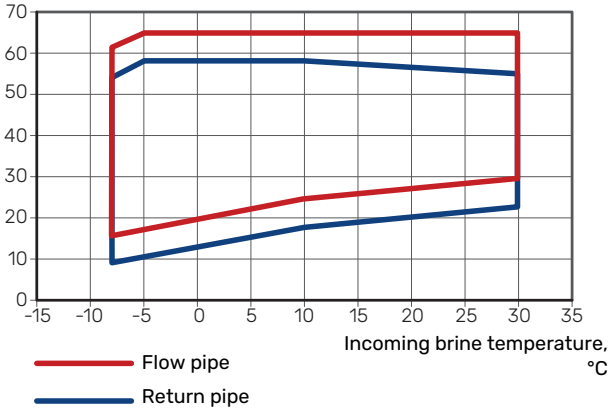
6 - 10 kW 3x400V

Temperature, °C

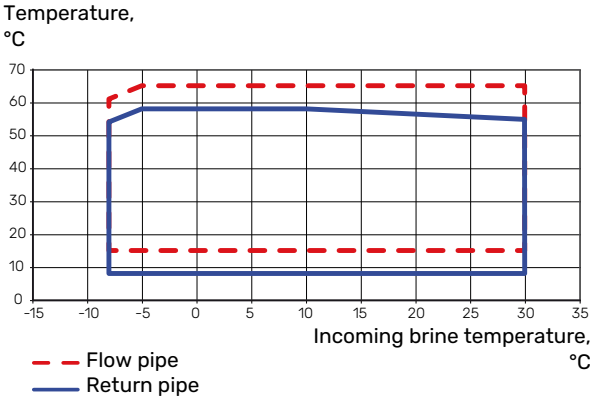


12 kW 3x400V

Temperature, °C



Others


Temperature,
°C
70
60
50
40
30
20
10
0
-15
-10
-5
0
5
10
15
20
25
30
35
Incoming brine temperature,
°C
Flow pipe
Return pipe

ELECTRICAL DATA
3x230 V

F1145-15		
Rated voltage		230V 3N ~ 50Hz
Starting current	A_{rms}	82.5
Max operating current including 0 kW immersion heater (Recommended fuse rating).	A_{rms}	11(16)
Max operating current including 2 kW immersion heater (Recommended fuse rating).	A_{rms}	28(32)
Max operating current including 4 kW immersion heater (Recommended fuse rating).	A_{rms}	35(40)
Max operating current including 6 kW immersion heater (Recommended fuse rating).	A_{rms}	35(40)
Max operating current including 9 kW immersion heater, requires reconnection (Recommended fuse rating).	A_{rms}	46(50)
Additional power	kW	2 – 9

F1145-17		
Rated voltage		230V 3N ~ 50Hz
Starting current	A_{rms}	84.5
Max operating current including 0 kW immersion heater (Recommended fuse rating).	A_{rms}	13(16)
Max operating current including 2 kW immersion heater (Recommended fuse rating).	A_{rms}	31(32)
Max operating current including 4 kW immersion heater (Recommended fuse rating).	A_{rms}	38(40)
Max operating current including 6 kW immersion heater (Recommended fuse rating).	A_{rms}	38(40)
Max operating current including 9 kW immersion heater, requires reconnection (Recommended fuse rating).	A_{rms}	49(50)
Additional power	kW	2 – 9

3x400 V

F1145-6		
Rated voltage		400V 3N ~ 50Hz
Starting current	A_{rms}	13
Max operating current including 0 kW immersion heater (Recommended fuse rating).	A_{rms}	5.3(16)
Max operating current including 1 – 2 kW immersion heater (Recommended fuse rating).	A_{rms}	13(16)
Max operating current including 3 – 4 kW immersion heater (Recommended fuse rating).	A_{rms}	13(16)
Max operating current including 5 – 6 kW immersion heater (Recommended fuse rating).	A_{rms}	17(20)
Max operating current including 7 kW immersion heater, connected on delivery (Recommended fuse rating).	A_{rms}	17(20)
Max operating current including 9 kW immersion heater, requires reconnection (Recommended fuse rating).	A_{rms}	20(20)
Additional power	kW	1 – 9

F1145-8		
Rated voltage		400V 3N ~ 50Hz
Starting current	A_{rms}	16
Max operating current including 0 kW immersion heater (Recommended fuse rating).	A_{rms}	6.4(16)
Max operating current including 1 – 2 kW immersion heater (Recommended fuse rating).	A_{rms}	14(16)
Max operating current including 3 – 4 kW immersion heater (Recommended fuse rating).	A_{rms}	14(16)
Max operating current including 5 – 6 kW immersion heater (Recommended fuse rating).	A_{rms}	18(20)
Max operating current including 7 kW immersion heater, connected on delivery (Recommended fuse rating).	A_{rms}	18(20)
Max operating current including 9 kW immersion heater, requires reconnection (Recommended fuse rating).	A_{rms}	21(25)
Additional power	kW	1 – 9

F1145-10		
Rated voltage		400V 3N ~ 50Hz
Starting current	A_{rms}	21
Max operating current including 0 kW immersion heater (Recommended fuse rating).	A_{rms}	8.3(16)
Max operating current including 1 – 2 kW immersion heater (Recommended fuse rating).	A_{rms}	15(16)
Max operating current including 3 – 4 kW immersion heater (Recommended fuse rating).	A_{rms}	15(16)
Max operating current including 5 – 6 kW immersion heater (Recommended fuse rating).	A_{rms}	19(20)
Max operating current including 7 kW immersion heater, connected on delivery (Recommended fuse rating).	A_{rms}	19(20)
Max operating current including 9 kW immersion heater, requires reconnection (Recommended fuse rating).	A_{rms}	22(25)
Additional power	kW	1 – 9

F1145-12		
Rated voltage		400V 3N ~ 50Hz
Starting current	A_{rms}	29
Max operating current including 0 kW immersion heater (Recommended fuse rating).	A_{rms}	9(16)
Max operating current including 1 – 2 kW immersion heater (Recommended fuse rating).	A_{rms}	18(20)
Max operating current including 3 – 4 kW immersion heater (Recommended fuse rating).	A_{rms}	18(20)
Max operating current including 5 – 6 kW immersion heater (Recommended fuse rating).	A_{rms}	18(20)
Max operating current including 7 kW immersion heater, connected on delivery (Recommended fuse rating).	A_{rms}	23(25)
Max operating current including 9 kW immersion heater, requires reconnection (Recommended fuse rating).	A_{rms}	24(25)
Additional power	kW	1 – 9

F1145-15		
Rated voltage		400V 3N ~ 50Hz
Starting current	A_{rms}	43
Max operating current including 0 kW immersion heater (Recommended fuse rating).	A_{rms}	11(16)
Max operating current including 1 – 2 kW immersion heater (Recommended fuse rating).	A_{rms}	20(20)
Max operating current including 3 – 4 kW immersion heater (Recommended fuse rating).	A_{rms}	20(20)
Max operating current including 5 – 6 kW immersion heater (Recommended fuse rating).	A_{rms}	20(20)
Max operating current including 7 kW immersion heater, connected on delivery (Recommended fuse rating).	A_{rms}	24(25)
Max operating current including 9 kW immersion heater, requires reconnection (Recommended fuse rating).	A_{rms}	26(30)
Additional power	kW	1 – 9

F1145-17		
Rated voltage		400V 3N ~ 50Hz
Starting current	A_{rms}	52
Max operating current including 0 kW immersion heater (Recommended fuse rating).	A_{rms}	13(16)
Max operating current including 1 – 2 kW immersion heater (Recommended fuse rating).	A_{rms}	22(25)
Max operating current including 3 – 4 kW immersion heater (Recommended fuse rating).	A_{rms}	22(25)
Max operating current including 5 – 6 kW immersion heater (Recommended fuse rating).	A_{rms}	22(25)
Max operating current including 7 kW immersion heater, connected on delivery (Recommended fuse rating).	A_{rms}	26(30)
Max operating current including 9 kW immersion heater, requires reconnection (Recommended fuse rating).	A_{rms}	28(30)
Additional power	kW	1 – 9

3X230 V

Model		F1145-15	F1145-17
Output data according to EN 14511			
0/35 nominal			
Heating capacity (P_H)	kW	15.33	17.03
Supplied power (P_E)	kW	3.47	4.21
COP		4.42	3.99
0/45 nominal			
Heating capacity (P_H)	kW	14.92	16.17
Supplied power (P_E)	kW	4.11	4.52
COP		3.63	3.58
SCOP according to EN 14825			
Rated heating output ($P_{designh}$), 35 °C / 55 °C	kW	18 / 18	20 / 20
SCOP cold climate, 35 °C / 55 °C		4.7 / 3.7	4.5 / 3.6
SCOP average climate, 35 °C / 55 °C		4.6 / 3.7	4.0 / 3.5
Energy rating, average climate			
The product's room heating efficiency class 35 °C / 55 °C [1]		A+++ / A++	A++ / A++
The system's room heating efficiency class 35 °C / 55 °C [2]		A+++ / A++	A++ / A++
Efficiency class hot water heating / declared tap profile with water heater [3]		A / XXL (VPB 500)	A / XXL (VPB 500)
Noise			
Sound power level (L_{WA})$_{EN\ 12102}$ at 0/35	dB(A)	42	42
Sound pressure level (L_{PA}) calculated values according to EN ISO 11203 at 0/35 and 1 m range	dB(A)	27	27
Electrical data			
Rated power, brine pump	W	35 – 185	35 – 185
Rated power, heating medium pump	W	10 – 87	10 – 87
Enclosure class		IPX1B	
Equipment Compliant with IEC 61000-3-12			
For Connection Design Purposes, Compliant with IEC 61000-3-3 technical requirements			
Refrigerant circuit			
Type of refrigerant		R407C	
GWP refrigerant		1,774	
Filling amount	kg	2.0	2.0
CO_2 equivalent	ton	3.55	3.55
Brine circuit			
Min/max system pressure brine	MPa (bar)	0.05 (0.5) / 0.6 (6)	
Min flow	l/s	0.62	0.67
Nominal flow	l/s	0.75	0.82
Max external avail. press at nom flow	kPa	58	48
Min/Max incoming Brine temp	°C	see diagram	
Min. outgoing brine temp.	°C	-12	
Heating medium circuit			
Min/Max system pressure heating medium	MPa	0.05 (0.5) / 0.6 (6)	
Min flow	l/s	0.25	0.27
Nominal flow	l/s	0.36	0.40
Max external avail. press at nom flow	kPa	60	55
Min/max HM-temp	°C	see diagram	
Pipe connections			
Brine ext diam. CU pipe	mm	28	35
Heating medium ext diam. CU pipes	mm	28	28
Connection, hot water heater ext diam	mm	28	28
Dimensions and weight			
Width x Depth x Height	mm	600 x 620 x 1,500	
Ceiling height [4]	mm	1,670	
Weight complete heat pump	kg	200	205
Weight only cooling module	kg	134	136
Miscellaneous			
Part number, 3x230 V		065 140	065 141

1 Scale for the product's efficiency class room heating: A+++ to D.

2 Scale for the system's efficiency class room heating: A+++ to G. Reported efficiency for the system takes the product's temperature regulator into account.

3 Scale for efficiency class hot water: A+ to F.

4 With feet removed, the height is approx. 1,650 mm.

3X400 V

Model		F1145-6	F1145-8	F1145-10	F1145-12	F1145-15	F1145-17
Output data according to EN 14511							
0/35 nominal							
Heating capacity (P_H)	kW	5.69	7.93	10.03	11.48	15.37	16.89
Supplied power (P_E)	kW	1.27	1.70	2.28	2.51	3.48	3.93
COP		4.47	4.67	4.4	4.57	4.42	4.3
0/45 nominal							
Heating capacity (P_H)	kW	5.33	7.50	9.55	10.99	14.86	16.10
Supplied power (P_E)	kW	1.52	2.03	2.63	3.02	4.09	4.49
COP		3.51	3.69	3.63	3.64	3.63	3.59
SCOP according to EN 14825							
Rated heating output ($P_{designh}$), 35 °C / 55 °C	kW	7 / 7	10 / 9	13 / 12	14 / 14	18 / 18	20 / 20
SCOP cold climate, 35 °C / 55 °C		4.8 / 3.8	5.0 / 4.0	4.8 / 3.8	4.9 / 3.8	4.7 / 3.7	4.5 / 3.7
SCOP average climate, 35 °C / 55 °C		4.7 / 3.7	4.9 / 3.9	4.5 / 3.6	4.8 / 3.7	4.6 / 3.7	4.4 / 3.6
Energy rating, average climate							
The product's room heating efficiency class 35 °C / 55 °C[1]		A+++ / A++	A+++ / A++	A++ / A++	A+++ / A++	A+++ / A++	A++ / A++
The system's room heating efficiency class 35 °C / 55 °C[2]		A+++ / A++	A+++ / A+++	A+++ / A++	A+++ / A++	A+++ / A++	A++ / A++
Efficiency class hot water heating / declared tap profile with water heater[3]		A / XXL (VPB 300)	A / XXL (VPB 300)	A / XXL (VPB 300)	A / XXL (VPB 300)	A / XXL (VPB 500)	A / XXL (VPB 500)
Noise							
Sound power level (L_{WA})$_{EN\ 12102}$ at 0/35	dB(A)	41	38	42	43	42	42
Sound pressure level (L_{PA}) calculated values according to EN ISO 11203 at 0/35 and 1 m range	dB(A)	26	23	27	28	27	27
Electrical data							
Rated power, brine pump	W	30 – 87	30 – 87	35 – 185	35 – 185	35 – 185	35 – 185
Rated power, heating medium pump	W	7 – 67	7 – 67	7 – 67	7 – 67	10 – 87	10 – 87
Enclosure class		IPX1B					
Equipment Compliant with IEC 61000-3-12							
For Connection Design Purposes, Compliant with IEC 61000-3-3 technical requirements							
Refrigerant circuit							
Type of refrigerant		R407C					
GWP refrigerant		1,774					
Filling amount	kg	1.5	1.7	1.9	2.0	2.0	2.0
CO_2 equivalent	ton	2.66	3.02	3.37	3.55	3.55	3.55
Brine circuit							
Min/max system pressure brine	MPa (bar)	0.05 (0.5) / 0.6 (6)					
Min flow	l/s	0.25	0.33	0.4	0.47	0.62	0.67
Nominal flow	l/s	0.30	0.42	0.51	0.65	0.75	0.82
Max external avail. press at nom flow	kPa	58	48	85	69	58	48
Min/Max incoming Brine temp	°C	see diagram					
Min. outgoing brine temp.	°C	-12					
Heating medium circuit							
Min/Max system pressure heating medium	MPa (bar)	0.05 (0.5) / 0.6 (6)					
Min flow	l/s	0.10	0.13	0.16	0.19	0.25	0.27
Nominal flow	l/s	0.13	0.18	0.22	0.27	0.36	0.40
Max external avail. press at nom flow	kPa	67	64	64	58	60	55
Min/max HM-temp	°C	see diagram					
Pipe connections							
Brine ext diam. CU pipe	mm	28	28	28	28	28	35
Heating medium ext diam. CU pipes	mm	22	22	22	28	28	28
Connection, hot water heater ext diam	mm	22	22	22	28	28	28
Dimensions and weight							
Width x Depth x Height	mm	600 x 620 x 1,500					

Model		F1145-6	F1145-8	F1145-10	F1145-12	F1145-15	F1145-17
Ceiling height [4]	mm	1,670					
Weight complete heat pump	kg	160	170	175	190	200	205
Weight only cooling module	kg	100	105	111	126	134	136
Miscellaneous							
Part number, 3x400 V, with energy meter		065 554	065 555	065 556	065 117	065 118	065 119
Part number, 3x400 V		065 548	065 549	065 550	065 097	065 098	065 099

1 Scale for the product's efficiency class room heating: A+++ to D.

2 Scale for the system's efficiency class room heating: A+++ to G. Reported efficiency for the system takes the product's temperature regulator into account.

3 Scale for efficiency class hot water: A+ to F.

4 With feet removed, the height is approx. 1,650 mm.

Sustainable energy solutions since 1952

NIBE has since 1952 been manufacturing energy-efficient and sustainable climate solutions for your home. It all began in Markaryd, in the southern Swedish province of Småland, and we recognise our Nordic heritage by utilising the power of nature. We combine renewable energy with smart technology to offer efficient solutions, allowing us to work together to create a more sustainable future.

Regardless of whether it is a chilly winter's day or a warm afternoon in the summer sun, we need a balanced indoor climate that allows us to enjoy a comfortable life, whatever the weather. Our extensive range of products supply your home with cooling, heating, ventilation and hot water, making it possible for you to create a pleasant indoor climate with little impact on the environment.

NIBE Energy Systems
Box 14, SE-285 21 Markaryd
nibe.eu

PBD EN 2451-5 M11991