

NIBE™ F1255

Ground source heat pump

Speed-controlled ground-source heat pump with integrated water heater



- Optimal annual coefficient of performance and minimal operating costs thanks to the inverter controlled compressor.
- The heat pump is available in three different sizes:
 - 1.5-6 kW
 - 3-12 kW
 - 4-16 kW
- Software controlled circulation pumps that supply the heat pump and the heating system with suitable flow.
- It also gives you the opportunity to control comfort in your home no matter where you are by using NIBEUp-link™.
- Display unit with easy-to-read colour screen.
- Supply temperature up to 70 °C.
- Return line temperature up to 58 °C.
- Load monitor fitted at the factory.
- HM control for the replacement market.
- Integrated clock with real-time function, which makes it easy to schedule hot water and indoor temperature changes.
- Prepared for (with accessory):
 - Pool heating for both pool and spa.
 - Control of up to eight heating systems.
- Easy to remove the cooling module.

NIBE F1255 is a heat pump for heating small houses and terraced houses.

 **NIBE**

A+++

The system's efficiency class for heating.

A  **XL**

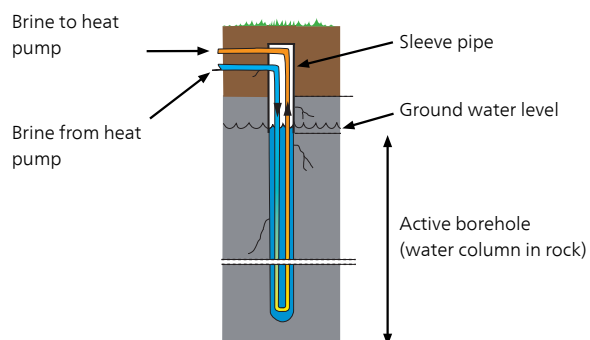
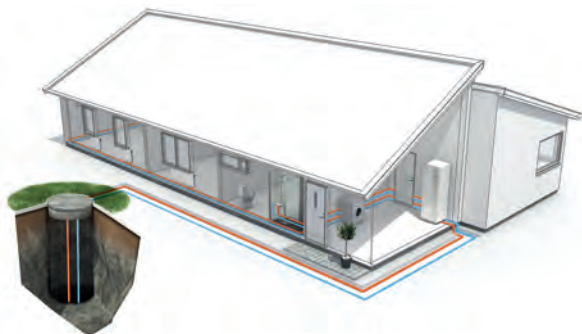
The product's efficiency class and tap profile for hot water.

This is how NIBE™ F1255 works

Installation method

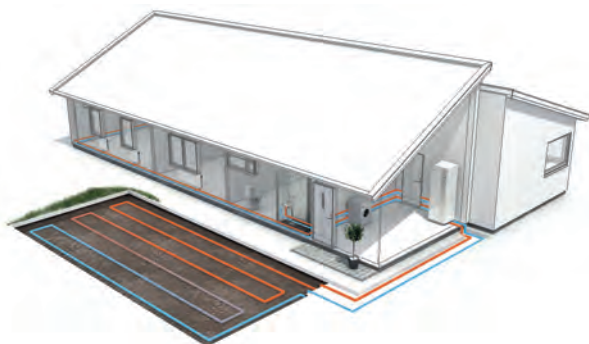
Rock

F1255 collects a proportion of the rock's stored solar energy via a collector in a borehole in the rock.



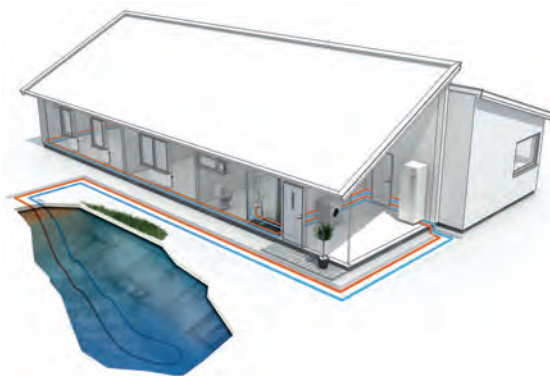
Ground

F1255 collects a proportion of the ground's stored solar energy via a buried ground collector.



Lake

F1255 collects a proportion of the water's stored solar energy via a lake collector that is anchored on the lake bed.



Design

F1255 is equipped with a 180 litre water heater, which is optimally insulated for minimal heat loss. F1255-6 has a 6.5 kW immersion heater whilst F1255-12 and F1255-16 have an integrated electric heater of 7 kW with seven steps that automatically engage as necessary. Switchable to four steps of 9 kW.

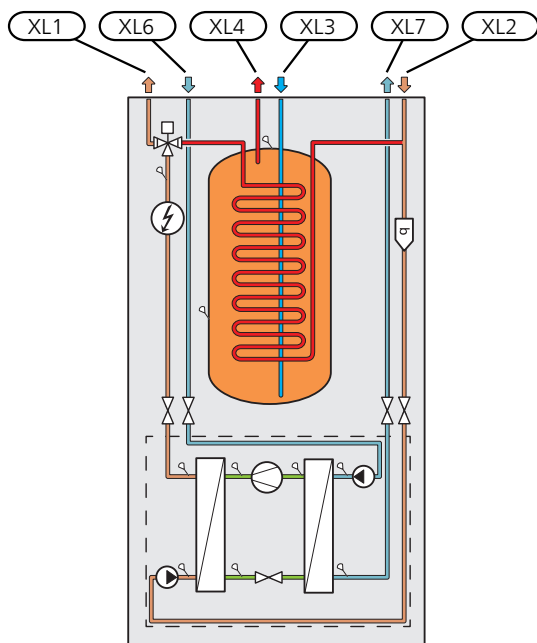
F1255 is constructed on a robust frame with durable panels and effective soundproofing for the best possible comfort. All panels are easy to remove to facilitate installation and for any servicing.

Principle of operation

F1255 consists of a heat pump, water heater, electrical module, circulation pumps and a control system. F1255 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 anti-freeze 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 the water heater. If there is a greater need for heating/hot water than the compressor can provide there is an integrated immersion heater.




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

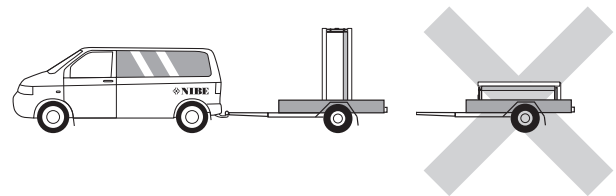
Good to know about NIBE™ F1255

Transport and storage

F1255 should be transported and stored vertically in a dry place. When being moved into a building, F1255 may be leant back 45 °.

 **Caution** The product can be tail heavy.

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



Pulling out the cooling module

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

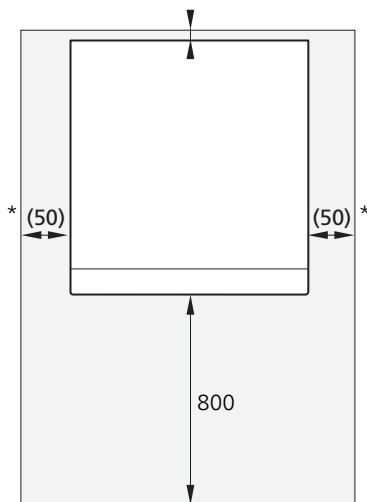
See section "Service" in the installer manual for comprehensive instructions about the separation.

Installation and positioning

- Position F1255 on a fixed foundation that can take the weight of the heat pump.
- Because water comes from F1255, the area where the heating pump is located must be equipped with floor drainage.
- Install with its back to an outside wall, ideally in a room where noise does not matter, in order to eliminate noise problems. If this is not possible, avoid placing it against a wall behind a bedroom or other room where noise may be a problem.
- Wherever the unit is located, walls to sound sensitive rooms should be fitted with sound insulation.
- Route pipes so they are not fixed to an internal wall that backs on to a bedroom or living room.

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 remove the side panels (see image). The panels do not need to be removed during service. All service on F1255 can be carried out from the front. Leave space between the heat pump and the wall behind (and any routing of supply cables and pipes) to reduce the risk of any vibration being propagated.



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

Supplied components

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



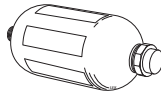
Outside sensor



Current sensor
(not 1x230V)



Room sensor



Level vessel



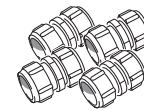
Safety valve
0.3 MPa (3 bar)



O-rings



Particle filter



Compression ring couplings

F1255 6 kW

1 x G1, 1 x G3/4

F1255 12/16 kW

1 x G1, 1 x G1 1/4

F1255 6 kW

2 x (ø28 x G25)

2 x (ø22 x G20)

F1255 12/16 kW

4 x (ø28 x G25)

Location

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

Installation

Pipe installation

Pipe installation must be carried out in accordance with current norms and directives. F1255 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).

F1255 is not equipped with external shut off valves; these must be installed to facilitate any future servicing.

Pipe connection brine

- Insulate all indoor brine pipes against condensation.
- The level vessel must be installed at the highest point in the brine system, on the incoming pipe before the brine pump .

If the level vessel cannot be placed at the highest point, an expansion vessel must be used.



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

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

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

Side connection

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

To angle out a connection:

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

Pipe connection heating medium

Connecting the climate system

A climate system is a system that regulates indoor comfort with the help of the control system in F1255 and for example radiators, underfloor heating/cooling, fan convectors etc.

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

Pipe connection water heater

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



Caution 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 www.nibe.eu.

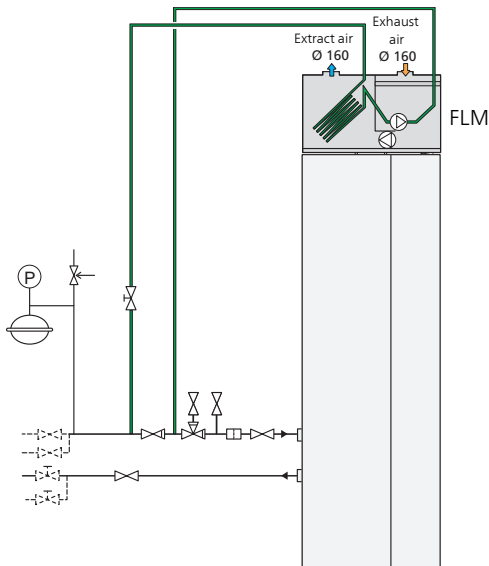
Docking alternatives

Ventilation recovery



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

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

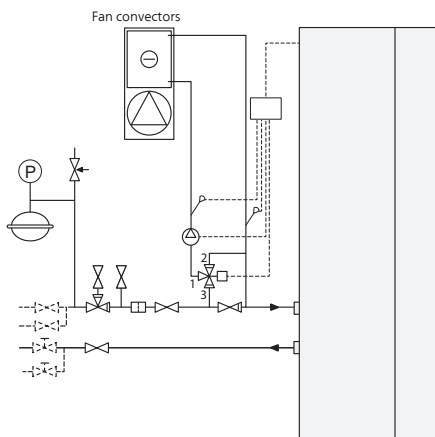


Free cooling



The installation can be supplemented with fan convectors, for example, in order to allow connections for free cooling (PCS 44).

- 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.

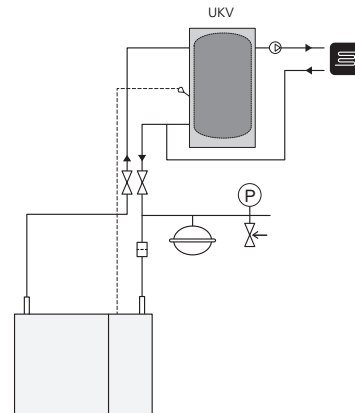


Under floor heating systems



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

To ensure a heating supply during hot water production, the heating system can be supplemented with a NIBE UKV vessel, e.g. when there is a water coil in the FTX ventilation.

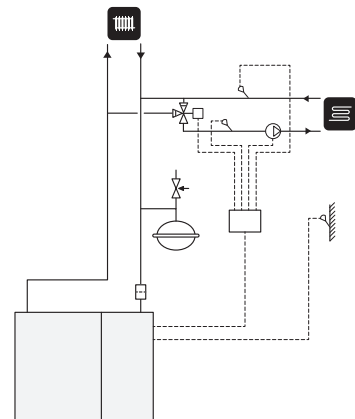


Two or more climate systems



When more than one climate system, with a lower temperature, is to be heated up, the following connection can be used. The shunt valve lowers the temperature to, for example, the under floor heating system.

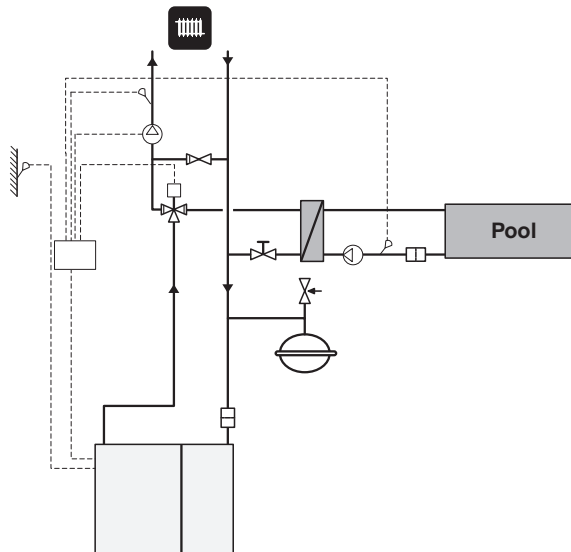
The ECS 40/ECS 41 accessory is required for this connection.



Pool



Charging of the pool is controlled by the pool sensor. In the case of low pool temperatures, the shuttle valve reverses direction and opens towards the pool exchanger. The POOL 40 accessory is required for this connection.



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.

Guideline values for collectors



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

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

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

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

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

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

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

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 warmer parts of the year. When it gets colder outside, the climate system must be started. The colder it is outside, the warmer radiators and under floor heating system must 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 setting selected. After adjustment, the correct amount of heat for the outdoor temperature is supplied. The supply temperature of the heat pump will hover around the theoretically required value.

Own curve

F1255 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



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 occasional higher hot water demand, there is a function called "temporary lux" that allows the temperature to be raised via one time increase or up to 12 hours (selected in the menu system).

Additional heat only

F1255 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

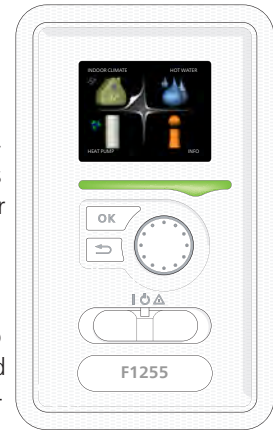
F1255 has an integrated under floor drying function. This allows for controlled drying of concrete slabs. It is possible to create your own program and to follow a pre-programmed time and temperature schedule.

The display

F1255 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, save logged information and manage the settings in F1255.



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

NIBE Uplink™



Using the Internet and NIBE Uplink™, users can get a quick overview and the present status of the installation the heating in your home. They get a good overall view where they can follow and control the heating and hot water comfort. If the system is affected by a malfunction, they receive an alert via e-mail that allows them to react quickly.

NIBE Uplink™ also gives users the opportunity to easily control the comfort in the home, no matter where they are.

Range of services

The users have access to different levels of service via NIBE Uplink™. There is a basic level that is free and a premium level where they can select different extended service functions for a fixed annual subscription fee (the subscription fee varies depending on the selected functions).

NIBE Uplink™ also available as an app from App Store and Google Play.

Installation and associated equipment requirements

The following is required in order for NIBE Uplink™ to function with the installation:

- Network cable Cat.5e UTP (straight, male-male), wired network communication.
- Internet connection (broadband).
- Web browser that supports JavaScript. If Internet Explorer is used, it should be version 7 or higher. See the help file in the web browser for information on how to activate JavaScript.

For further presentation, visit www.nibeuplink.com.

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 heat pump's consumption according to the time of day that electricity prices are lowest. This allows for savings, provided that the hourly rate subscription has been signed with the electricity supplier.

The function is based on hourly rates for the coming day being downloaded via NIBE Uplink™. An internet connection and account on NIBE Uplink™ are necessary to use the function.

Brine control – for users who are going to replace existing heat pump

The risk of over-exploiting the collector system is reduced with the smart integrated Brine control. This function can be used when replacing older heat pump systems where the collector may be undersized for a modern heat pump with a higher COP and SCOP.



Caution An undersized collector can result in additional heat being required to assist on the coldest days of the year.

Technical data

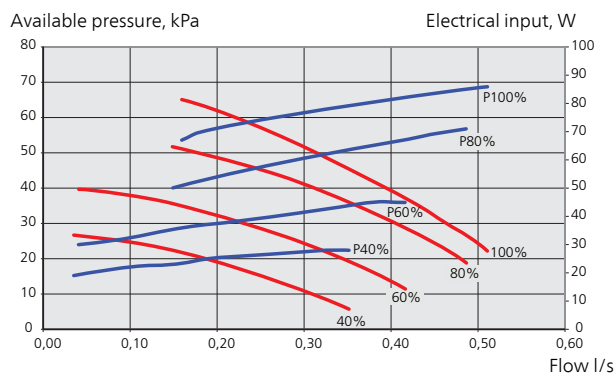
Pump capacity diagrams, collector side

The brine pump must run at the correct speed for the correct flow in the brine system. F1255 has a brine pump that can be automatically controlled in standard mode.

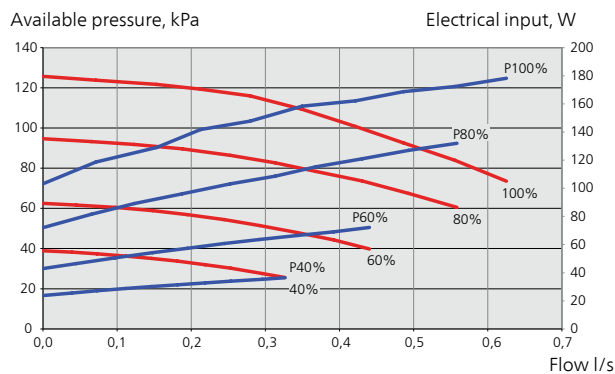
The automatic control occurs when the compressor is running and it sets the speed of the brine pump to obtain the optimal temperature difference between the supply and return lines.

— Available pressure, kPa
— p Electrical output, W

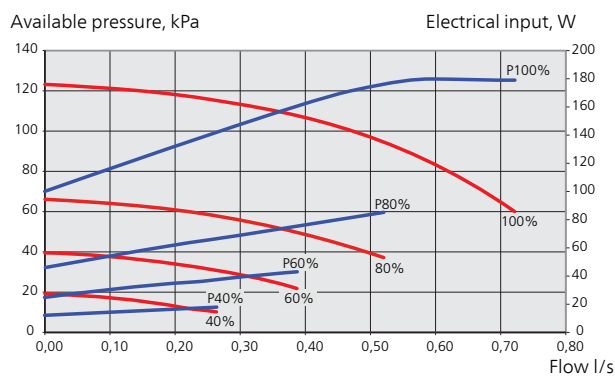
F1255 6 kW



F1255 12 kW



F1255 16 kW



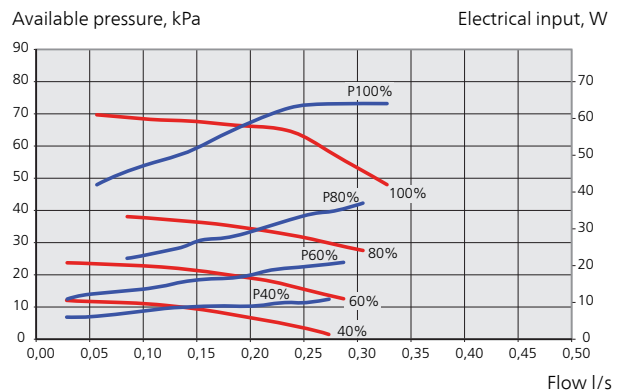
Pump capacity diagrams, heating medium side

The heating medium pump must run at the correct speed for the correct flow in the heating medium system, F1255 has a heating medium pump that can be automatically controlled in standard mode.

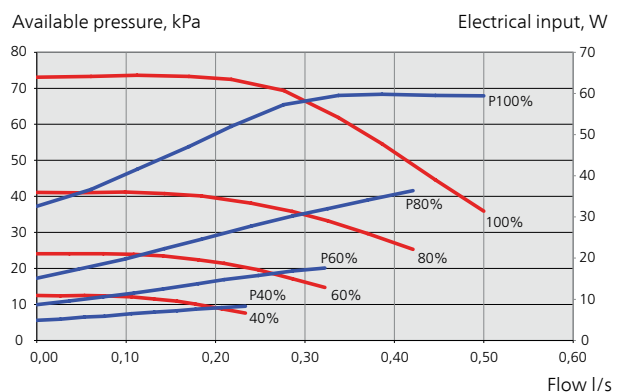
This automatic control occurs when the compressor is running and sets the speed of the heating medium pump, for the present operating mode, to obtain the optimal temperature difference between the supply and return lines.

— Available pressure, kPa
— p Electrical output, W

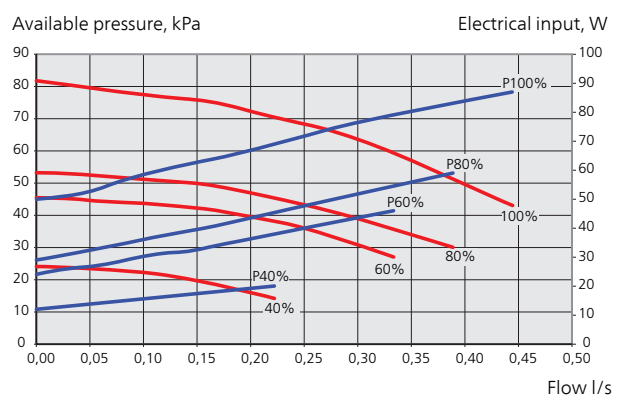
F1255 6 kW



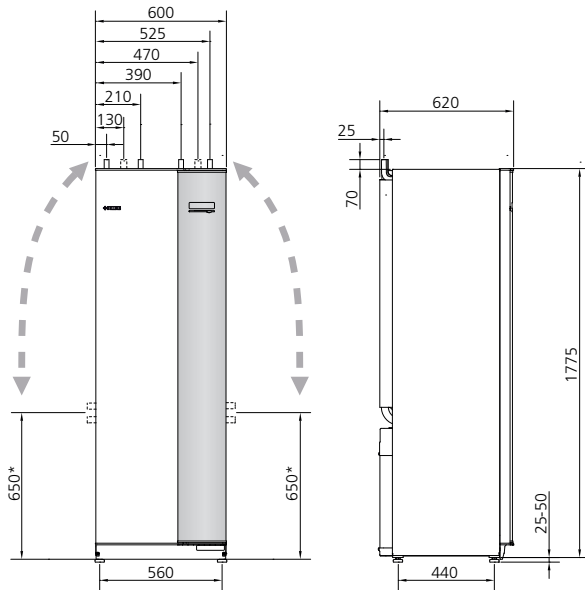
F1255 12 kW



F1255 16 kW

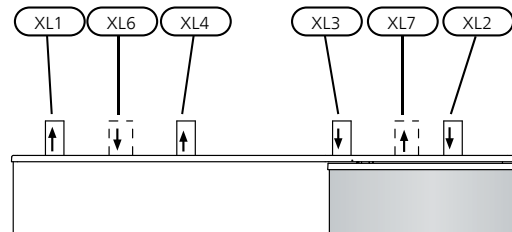


Dimensions



* Can be angled for side connection

Pipe connections



Pipe dimensions

Connection		6 kW	12 kW	16 kW
(XL1)/(XL2) Heating medium flow/return ext Ø	(mm)	22	28	
(XL3)/(XL4) Cold/hot water Ø	(mm)	22		
(XL6)/(XL7) Brine in/out ext Ø	(mm)	28		

Technical specifications

The following data only applies to F1255 3x400 V. F1255 is also available with energy meter, passive cooling, and in voltage versions 1x230 V and 3x230 V. Contact your NIBE dealer for more information.

3x400V electrical data

F1255-6		
Rated voltage		400V 3N ~ 50Hz
Max operating current including 0 kW immersion heater (Recommended fuse rating).	A_{rms}	12(16)
Max operating current including 0.5 – 6.5 kW immersion heater (Recommended fuse rating).	A_{rms}	16(16)
Additional power	kW	0.5 – 6.5
F1255-12		
Rated voltage		400V 3N ~ 50Hz
Max operating current including 0 kW immersion heater (Recommended fuse rating).	A_{rms}	9(10)
Max operating current including 1 kW immersion heater (Recommended fuse rating).	A_{rms}	12(16)
Max operating current including 2 – 4 kW immersion heater (Recommended fuse rating).	A_{rms}	16(20)
Max operating current including 5 – 7 kW immersion heater (Recommended fuse rating).	A_{rms}	21(25)
Max operating current including 9 kW immersion heater, requires reconnection (Recommended fuse rating).	A_{rms}	24(25)
Additional power	kW	1 – 9
F1255-16		
Rated voltage		400V 3N ~ 50Hz
Max operating current including 0 kW immersion heater (Recommended fuse rating).	A_{rms}	10(10)
Max operating current including 1 kW immersion heater (Recommended fuse rating).	A_{rms}	13(16)
Max operating current including 2 – 4 kW immersion heater (Recommended fuse rating).	A_{rms}	17(20)
Max operating current including 5 – 7 kW immersion heater (Recommended fuse rating).	A_{rms}	21(25)
Max operating current including 9 kW immersion heater, requires reconnection (Recommended fuse rating).	A_{rms}	24(25)
Additional power	kW	1 – 9
Short circuit power (Ssc)*	MVA	2.0

*) This equipment complies with IEC 61000-3-12, on the condition that the short circuit power S_{sc} is greater than or equal to 2.0 MVA at the connection point between the customer installation electrical supply and the mains network. It is the responsibility of the installer or user to ensure, through consultation with the distribution network operator if required, that the equipment is only connected to a supply with a short circuit power S_{sc} equal to or greater than 2.0 MVA.

3x400 V

		F1255-6	F1255-12	F1255-16
Output data according to EN 14511 nominal				
0/35				
Rated output	kW	3.15	5.06	8.89
Installed electrical output	kW	0.67	1.04	1.83
COP		4.72	4.87	4.85
0/45				
Rated output	kW	2.87	4.78	8.63
Installed electrical output	kW	0.79	1.27	2.29
COP		3.61	3.75	3.77
10/35				
Rated output	kW	4.30	6.33	11.22
Installed electrical output	kW	0.66	1.03	1.84
COP		6.49	6.12	6.11
10/45				
Rated output	kW	3.98	5.98	10.92
Installed electrical output	kW	0.83	1.30	2.32
COP		4.79	4.59	4.72
SCOP according to EN 14825				
Nominal heating output (designh)	kW	6	12	16
SCOP _{EN14825} cold climate 35 °C / 55 °C		5.5 / 4.1	5.4 / 4.3	5.5 / 4.2
SCOP _{EN14825} average climate, 35 °C / 55 °C		5.2 / 4.0	5.2 / 4.1	5.2 / 4.1
Energy rating, average climate				
Efficiency class for space heating 35 °C / 55 °C		A++ / A++	A++ / A++	A++ / A++
Space heating efficiency class of the system 35 °C / 55 °C ¹⁾		A+++ / A+++	A+++ / A+++	A+++ / A+++
Efficiency class hot water / charging profile		A / XL	A / XL	A / XL
Sound power level (L_{WA}) acc to EN 12102 at 0/35	dB(A)	36 – 43	36 – 47	36 – 47
Sound pressure level (L_{PA}) calculated values according to EN ISO 11203 at 0/35 and 1m range	dB(A)	21 – 28	21 – 32	21 – 32
Electrical data				
Output, Brine pump	W	10 – 87	3 – 180	20 – 180
Output, Heating medium pump	W	2 – 63	2 – 60	10 – 87
Enclosure class		IP21		
Refrigerant circuit				
Type of refrigerant		R407C		
Volume	kg	1.16	2.0	2.2
CO ₂ equivalent	ton	2.06	3.55	3.90
Brine circuit				
Min/max system pressure brine	MPa	0.05 (0.5 bar) / 0.45 (4.5 bar)		
Nominal flow	l/s	0.18	0.29	0.51
Max external avail. press at nom flow	kPa	64	115	95
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 bar) / 0.45 (4.5 bar)		
Nominal flow	l/s	0.08	0.12	0.22
Max external avail. press at nom flow	kPa	69	73	71
Min/max HM-temp	°C	see diagram		
Pipe connections				
Brine ext diam. CU pipe	mm	28		

		F1255-6	F1255-12	F1255-16
Heating medium ext diam. CU pipes	mm	22	28	
Hot water connection external diam	mm	22		
Cold water connection external diam	mm	22		
Water heater				
Volume water heater	l	approx. 180		
Max pressure in water heater	MPa	1.0 (10 bar)		
Hot water heating capacity (comfort mode Normal) According to EN16147				
Amount of hot water (40 °C)		245	240	240
COP _{DHW} (load profile XL)		2.6	2.5	2.5
Dimensions and weight				
Width	mm	600		
Depth	mm	620		
Height	mm	1800		
Required ceiling height ²⁾	mm	1950		
Corrosion protection ³⁾		Cu	Rf	E
Weight complete heat pump	kg	220	200	235
Weight only cooling module	kg	90		120
Part number, 3x400V		065 267	065 269	065 268
		065 400	065 402	065 401
		065 059	065 257	065 239

¹⁾Reported efficiency for the system takes the product's temperature regulator into account.

²⁾With feet removed the height is approx. 1930 mm for F1255.

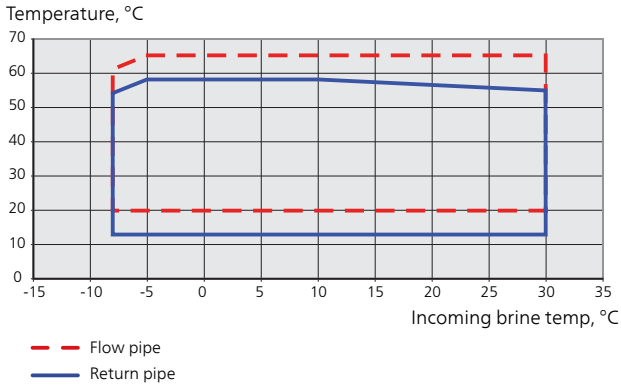
³⁾Cu: copper, Rf: stainless, E: enamel.

Working range heat pump, compressor operation

The compressor provides a supply temperature up to 65 °C, at 0 °C incoming brine temperature, the remainder (up to 70°C) is obtained using the additional heat.

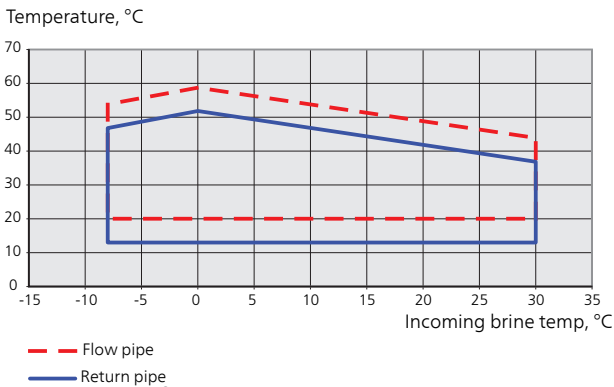
F1255-6, -12, -16

This diagram shows the working range below 75 % for F1255-6 and the entire working range for F1255-12, -16.



F1255-6

This diagram shows the working range above 75 % for F1255-6.



Caution Unlocking is required for F1255-6 to operate above 75% compressor speed. This can produce a louder noise level than the value stated in the technical specifications.

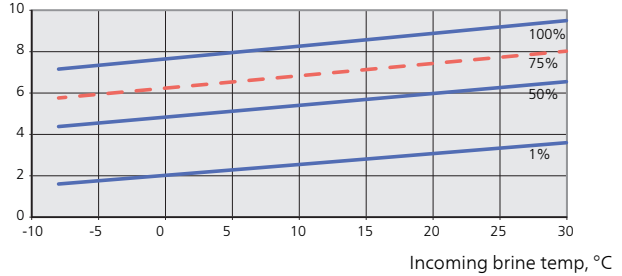
Diagram, dimensioning compressor speed

Heating mode 35 °C

Use this diagram to dimension the heat pump. The percentages show approximate compressor speed.

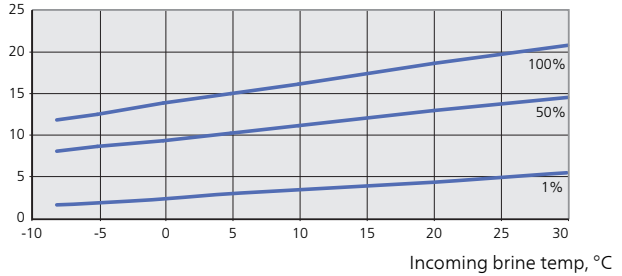
F1255-6

Specified heating output, kW



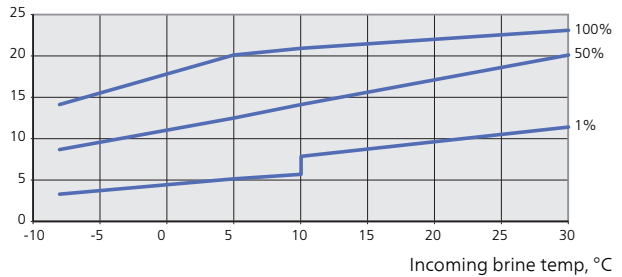
F1255-12

Specified heating output, kW



F1255-16

Supplied heating output kW



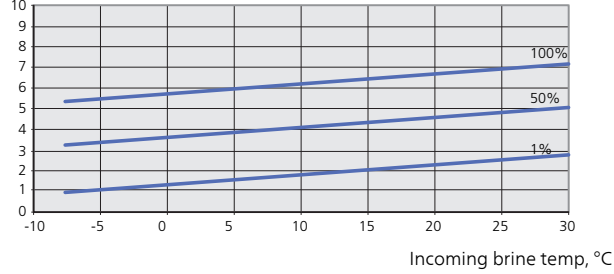
Cooling mode (Accessory required)



Caution To dimension heating dump, see the diagram for heating operation.

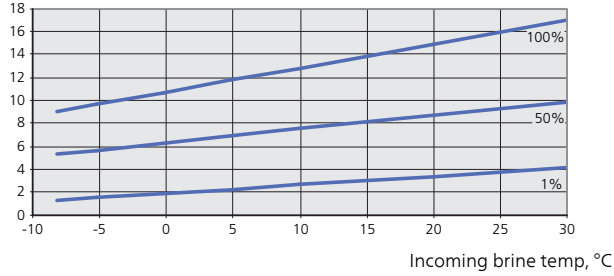
**Supply temperature, heating medium 35 °C
F1255-6**

Specified cooling output, kW



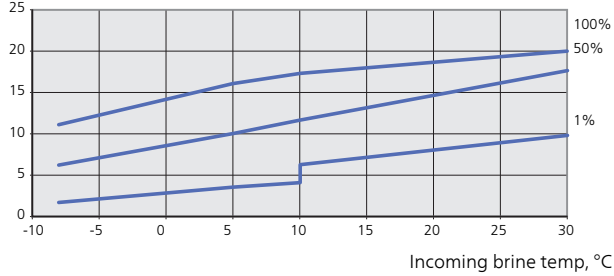
F1255-12

Specified cooling output, kW



F1255-16

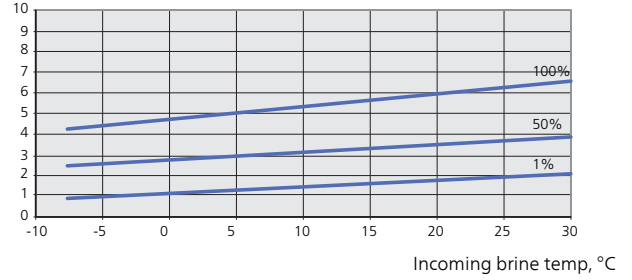
Specified cooling output, kW



Supply temperature, heating medium 50 °C

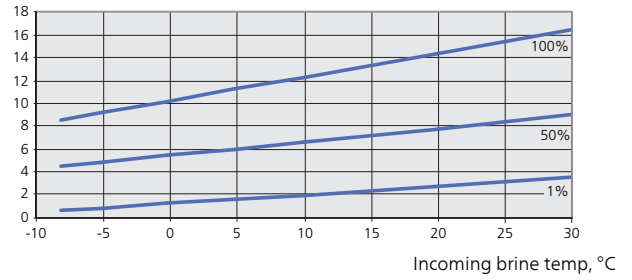
F1255-6

Specified cooling output, kW



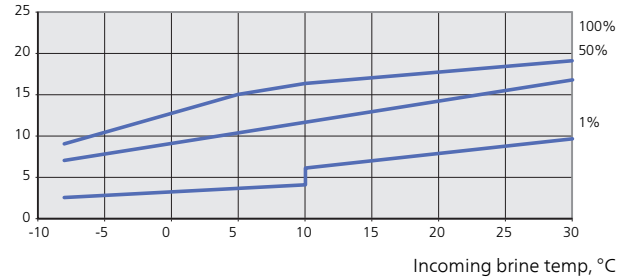
F1255-12

Specified cooling output, kW



F1255-16

Specified cooling output, kW

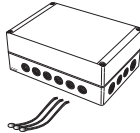


Accessories

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

Active/Passive cooling (4-pipe) 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.



Active/Passive cooling HPAC 40

The accessory HPAC 40 is a climate exchange module that is to be included in a system with F1255.



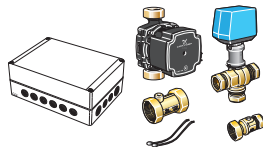
Extra shunt group ECS 40/ECS 41

This accessory is used when F1255 is installed in houses with two or more different heating systems that require different supply temperatures.



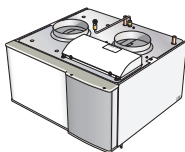
Free cooling PCS 44

This accessory is used when F1255 is installed in an installation with passive cooling.



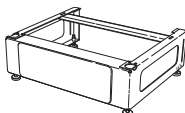
Exhaust air module FLM

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



Base extension EF 45

This accessory can be used when pipes for the F1255 come up out of the floor.



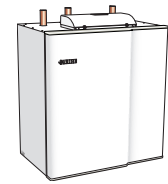
Communications module SMS 40

When there is no internet connection, you can use the accessory SMS 40 to control F1255 via SMS.



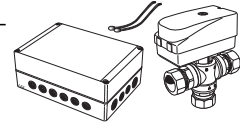
Passive cooling PCM 42

PCM 42 makes it possible to obtain passive cooling from rock, groundwater or surface soil collectors.



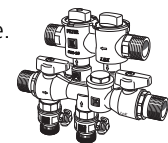
Pool heating POOL 40

POOL 40 is used to enable pool heating with F1255.



Filling valve kit KB 25/32

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



Room unit RMU 40

RMU 40 means that control and monitoring of the heat pump can be carried out in a different part of the accommodation to where F1255 is located.



Solar package

Solar panel package with extremely long service-life to produce your own electricity.

PV3031

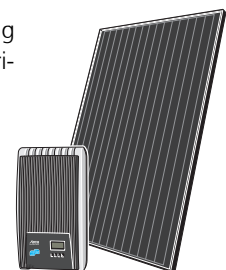
3 kW

PV3093

9 kW

PV3063

6 kW



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.

