

# NIBE F370

Exhaust air heat pump

Complete heat pump unit that provides heating, hot water, ventilation and heat recovery



- Display unit with easy-to-read colour screen.
- It also gives you the opportunity to control comfort in your home no matter where you are by using NIBE Uplink.
- Great savings thanks to the large compressor, which, with intelligent control, works with the current most favourable temperature conditions.
- Low energy circulation pump, class A, and low energy fan.
- Outdoor and room sensors.
- Measures and logs average indoor temperature during the heating season.
- Scheduling heating, ventilation and hot water as well as holiday mode.
- Uses an environmentally-friendly R290 refrigerant.
- Can control several heating systems, with different temperature levels.
- Phase individual load monitor.
- Low noise level and high ventilation capacity thanks to the design of the ventilation section.

F370 is a complete exhaust air heat pump for both new installations and replacement in houses or similar.

 **NIBE**

**A<sup>+</sup>**

The system's efficiency class for heating.

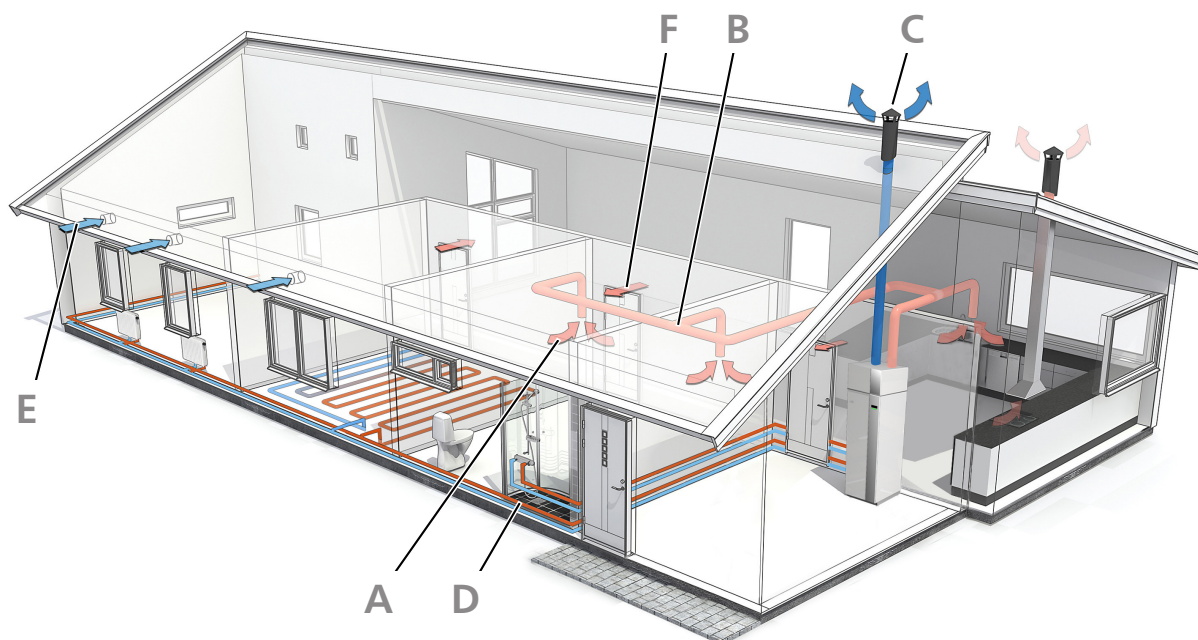
**A**



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

# This is how F370 works

## Principle



F370 is an exhaust air heat pump with integrated DC fan and a water heater that has copper, enamel or stainless steel corrosion protection. In addition, it has an integrated immersion heater.

Energy is recovered from the ventilation air and supplied to the heat pump, which reduces energy costs considerably. The device ventilates the house, supplies heat and produces domestic hot water. F370 is intended for low-temperature dimensioned radiator circuits and/or underfloor heating.

The unit is intended for both new installations and replacement in houses or similar.

Within the accessories, F370 can be docked to other heat sources such as district heating.

- A** The warm room air is drawn into the air duct system.
- B** The warm room air is fed to F370.
- C** The room air is released when it has passed F370. The air temperature has then been reduced as F370 has extracted the energy in the room air.
- D** F370 supplies the house with both hot water and room heating.
- E** Outdoor air is drawn into the house.
- F** Air is transported from rooms with outdoor air devices to rooms with exhaust air valves.

## Design

Control of F370 is designed to ensure easy operation while always enabling the heat pump to run as efficiently as possible. F370 decides on the best operation mode and is able to control several climate systems when several different supply temperatures are required. The display shows the current temperatures and set values in plain text.

The design of the ventilation section gives a high ventilation capacity. The steplessly adjustable fan can easily be increased or reduced via the display unit or an external signal.

F370 gives great savings thanks to a powerful compressor, which, with intelligent control, works with the current most favourable temperature conditions.

The insulation consists of moulded Neopor (environmentally friendly cellular plastic) for minimal heat loss.

The outer casing is of white powder-coated steel plate. The front door is easy to remove for easy access when installing and for servicing.

F370 has a maximum immersion heater output of 9.25 kW. The output is easy to adjust via the display and can be blocked.

## Principle of operation, cooling circuit

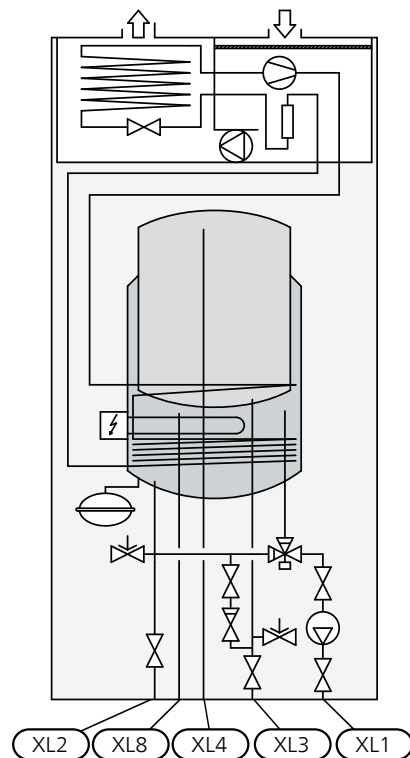
When the exhaust air at room temperature passes through the evaporator, the refrigerant evaporates because of its low boiling point. In this way the energy in the room air is transferred to the refrigerant.

The refrigerant is then compressed in a compressor, causing the temperature to rise considerably.

The warm refrigerant is led to the condenser. Here the refrigerant gives off its energy to the heating system water, whereupon the refrigerant changes state from gas to liquid.

The refrigerant then goes via filters to the expansion valve, where the pressure and temperature are reduced.

The refrigerant has now completed its circulation and returns to the evaporator.



- |     |                                   |
|-----|-----------------------------------|
| XL1 | Connection, heating medium flow   |
| XL2 | Connection, heating medium return |
| XL3 | Connection, cold water            |
| XL4 | Connection, hot water             |
| XL8 | Connection, docking               |

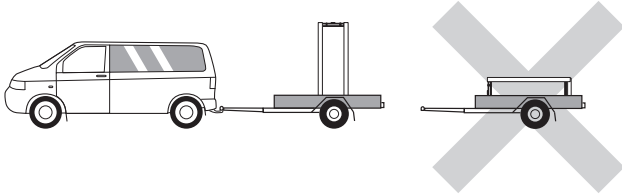


**Caution** This is an outline diagram, differences may occur in the actual installation.

# Good to know about F370

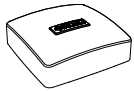
## Transport and storage

F370 should be transported and stored vertically in a dry place. However, the F370 may be carefully laid on its back when being moved into a building. The centre of gravity is in the upper part.

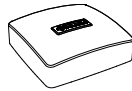


## Supplied components

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



Outside sensor



Room sensor



Earth cabling (2 pcs)



Current sensor

## Location

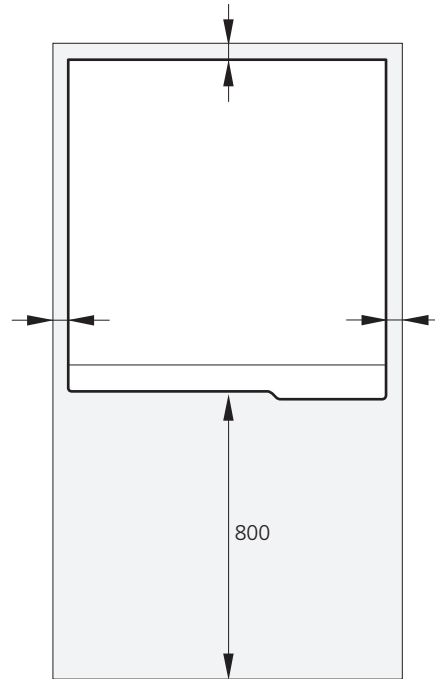
The kit of supplied items is placed on top of the product.

## Installation and positioning

- Position F370 on a fixed foundation that can take the weight of the heat pump.  
Because water comes from F370, the floor coating is important. A waterproof floor or floor membrane is recommended.
- Because water comes from F370, it is good if the area where the heating pump is located is provided 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.
- The heat pump's installation area should always have a temperature of at least 10 °C and max 30 °C.

## Installation area

Leave a free space of 800 mm in front of the product. Leave free space between F370 and wall/other machinery/fittings/cables/pipes etc. It is recommended that a space of at least 10 mm is left to reduce the risk of noise and of any vibrations being propagated.



**NOTE** Ensure that there is sufficient space (300 mm) above the heat pump for installing ventilation hoses.

# Installation

## Equipment

F370 is equipped with climate-controlled heating control system with outdoor temperature, room temperature and supply temperature sensors, circulation pump, load monitor and expansion vessel. For the heating section, F370 copper and stainless steel equipped with safety and filler valve. The hot water section in F370 copper and stainless steel is equipped with a set of valves comprising filler, mixing, non-return and safety valves.

## Maximum boiler and radiator volumes

The volume of the pressure expansion vessel is 10 litres and it is pre-pressurised as standard to 0.5 bar (5 mvp). As a result, the maximum permitted height between the vessel and the highest radiator is 5 metres. There is a valve on the vessel for any pre-pressure adjustment.

The pre-pressure of the expansion vessel must be stated in the inspection document.

The maximum system volume excluding the boiler is 219 litres at the above pre-pressure.

## Inspection

F370 is equipped with a closed expansion vessel as standard. National standards can assert that the boiler installation must be inspected before it is taken into use. This inspection may only be performed by persons with the necessary expertise.

National regulations can assert that the function of the ventilation system must be checked. This check may only be carried out by an authorised person.

## Pipe installation

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

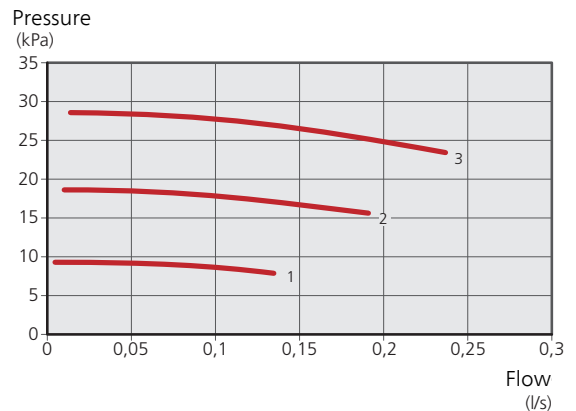
Pipe connections for cold and hot water as well as supply and return lines are fitted with 22 mm compression ring couplings.

### Connecting the heating system

When the circulation pump is operating, the flow in the heating system must not be stopped completely, i.e. at least one of the heating system's radiators/underfloor heating coils must be fully open. For F370 enamel, the heating system must be supplemented with a safety valve according to applicable standards.

### Available external pressure, heating system

#### Capacity, circulation pump (CP)

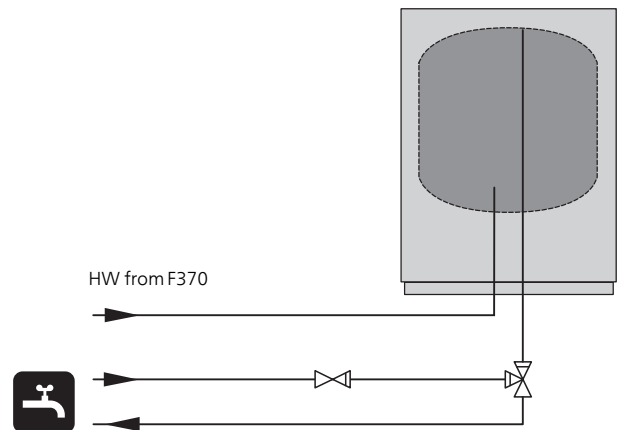


### Tap water connection

The heat pump should be supplemented with an extra water heater, if a large bath tub or other significant consumer of hot water is installed. For F370 enamel, the domestic water system must be supplemented with a safety valve and necessary valve equipment according to applicable standards.

### Water heater with immersion heater

If it is possible to use a water heater with an immersion heater, connect it as illustrated below.



For more information see [www.nibe.eu](http://www.nibe.eu).

## Ventilation

Connect F370 so that all of the exhaust air, except kitchen duct air (kitchen fan), passes the evaporator in the heat pump. The lowest ventilation flow must comply with the applicable national standards. For optimum heat pump performance, the ventilation flow should not be less than 28 l/s (100 m<sup>3</sup>/h) at an exhaust air temperature of at least 20°C. When the exhaust air temperature is lower than 20°C (for example at start-up and when there is nobody at home), the minimum value is 31 l/s (110 m<sup>3</sup>/h).

The heat pump's installation area must be ventilated to at least 5 l/s (18 m<sup>3</sup>/h)

If the exhaust air temperature falls below 16 °C, the compressor is blocked and electric additional heat is permitted. Heat is not recovered from the exhaust air when the compressor is blocked.

To prevent fan noise being transferred to the ventilation devices, silencers should be installed in the duct system. In the event of ventilation devices in noise-sensitive rooms, silencers must be installed.

Connections must be made via flexible hoses, which should be installed so that they are easy to replace. Because the extract air temperature is cold, the extract air duct must be insulated with diffusion-proof material (PE30) along its entire length. Exhaust air ducts that are routed in cold areas must be insulated. All joints in the ducting must be sealed and should be screwed/pop-riveted to prevent leakage. The duct system must be a minimum of air tightness class B. The extract air duct must be a maximum of 20 m long with a maximum of six bends.

The extract air duct must be a maximum of 20 m long with a maximum of six bends.

Because the heat pump contains the flammable refrigerant propane (R290), the air ducting system must be earthed. This is done by making a sound electrical connection to the exhaust air and vented air ducts with the enclosed earth cables (2 pcs).

Exhaust air duct (kitchen fan) must not be connected to F370.

A duct in a masonry chimney stack must not be used for extract air.

If a stove or similar is installed, it must have airtight doors and be able to take combustion air from outside.

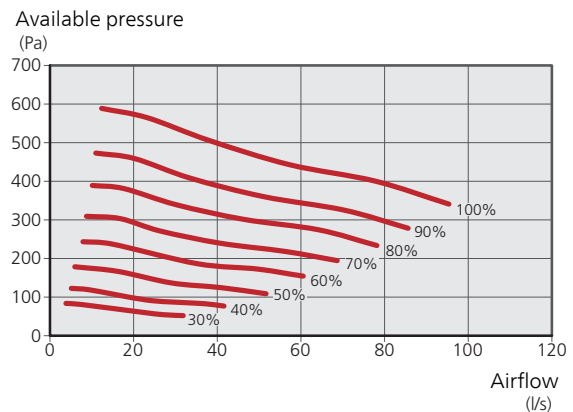
To achieve a good level of comfort, use a suitable number of outdoor air devices with good air distribution.

Incorrect ventilation adjustment may lead to reduced installation efficiency and thus poorer operating economy, and may result in moisture damage to the house.

## Setting the fan capacity

Select the ventilation capacity steplessly in the display.

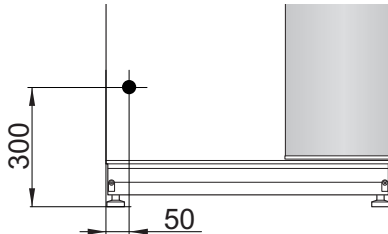
### Ventilation capacity



## Electrical connections

Connection must not be carried out without the permission of the electricity supplier and must be under the supervision of a qualified electrician.

F370 must be connected with corresponding connection cable (length approx. 2 m) via an isolator switch with a minimum breaking gap of 3 mm. Minimum cable area must be sized according to the fuse rating used. The connection cable can be found on the reverse of F370 (see dimensions diagram below).



All electrical equipment, except the outdoor temperature sensors, room sensors and the current sensors, is already connected at the factory.

Operation (230 V), fan and circulation pump are internally fused by a miniature circuit breaker (10 A).

### 3x400 V copper

| Electrical addition (kW) | Max (A) L1 | Max (A) L2 | Max (A) L3 |
|--------------------------|------------|------------|------------|
| 0.0                      | 5.3        | -          | -          |
| 2.0                      | 5.3        | -          | 8.7        |
| 3.7                      | 5.3        | 7.3        | 8.7        |
| 4.6*                     | 5.3        | 8.4        | 11.6       |
| 7.0                      | 16.9       | 7.3        | 11.6       |
| 9.3                      | 16.9       | 8.4        | 20.3       |

\*Factory setting

The table displays the maximum phase current for the relevant power step for the heat pump.

### 3x400V Stainless steel or enamel

| Electrical addition (kW) | Max (A) L1 | Max (A) L2 | Max (A) L3 |
|--------------------------|------------|------------|------------|
| 0.0                      | 5.3        | -          | -          |
| 2.0                      | 5.3        | -          | 8.7        |
| 4.7                      | 5.3        | 11.6       | 8.7        |
| 5.6*                     | 5.3        | 11.6       | 11.6       |
| 8.0                      | 16.9       | 11.6       | 11.6       |
| 10.3                     | 16.9       | 12.7       | 20.3       |

\*Factory setting

The table displays the maximum phase current for the relevant power step for the heat pump.

### 3x230V

| Electrical addition (kW) | Max (A) L1 | Max (A) L2 | Max (A) L3 |
|--------------------------|------------|------------|------------|
| 0.0                      | 3.9        | 3.9        | -          |
| 2.0                      | 3.9        | 11.2       | 8.7        |
| 4.7                      | 14.0       | 11.2       | 17.6       |
| 6.7*                     | 14.0       | 19.6       | 25.3       |
| 8.0                      | 23.6       | 23.6       | 20.1       |
| 10.0                     | 23.6       | 31.1       | 28.0       |

\*Factory setting

The table displays the maximum phase current for the relevant power step for the heat pump.

### 1x230V

| Electrical addition (kW) | Max (A) |
|--------------------------|---------|
| 0.0                      | 5.3     |
| 2.7                      | 16.9    |
| 5.3*                     | 28.3    |
| 8.0                      | 40.0    |

\*Factory setting

The table displays the maximum phase current for the relevant power step for the heat pump.

## Outdoor and room sensors

Connect the sensors with two-core cable to terminal block. The minimum cable cross-section should be 0.4 mm<sup>2</sup> up to 50 metres, for example EKXX or LiYY.

Install the outdoor temperature sensor in the shade on a wall facing north or north-west, so it is unaffected by the morning sun. If a cable duct is used, it must be sealed to prevent condensation in the sensor capsule.

Install the room sensor in a neutral location where the displayed temperature is required.

## External control and load monitor.

In cases where an external control is required, it can be connected to a terminal block.

F370 is equipped with two types of integrated load monitors. The basic monitor calculates whether future immersion heater steps can be connected without the specified main fuse tripping. The more advanced monitor is used together with the enclosed current sensors, which are installed in the electrical distribution unit and connected to a terminal block in F370.

If the current sensors are connected, F370 monitors the phase currents in the building and allocates the power steps automatically to the least loaded phase.

# 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.

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

F370 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

F370 can be used with only additional heat (electric boiler) to produce heating and hot water, for example, before the ventilation 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.

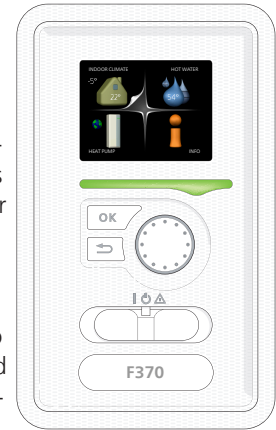
## The display

F370 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 F370.

Visit [www.nibeuplink.com](http://www.nibeuplink.com) and click the "Software" tab to download the latest software for your installation.



## NIBE Uplink



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

NIBE Uplink also gives you the opportunity to control the comfort in your home easily, no matter where you are.

### Range of services

You have access to different levels of service via NIBE Uplink. A basic level that is free and a premium level where you 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.

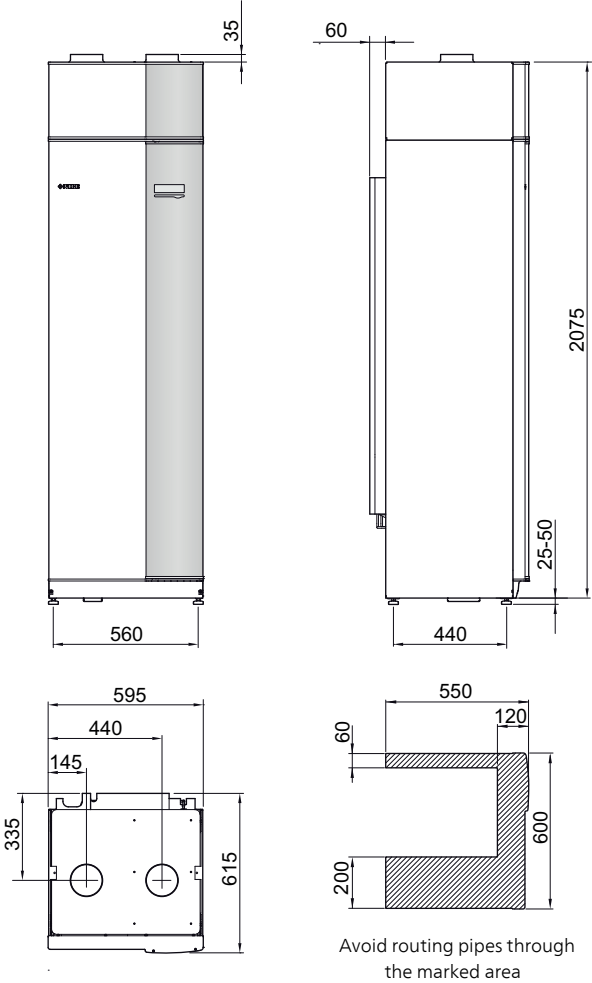
If it is not possible to connect to NIBE Uplink, F370 can be controlled remotely via SMS. For this, the accessory SMS 40 is required.

For further presentation, visit [www.nibeuplink.com](http://www.nibeuplink.com).

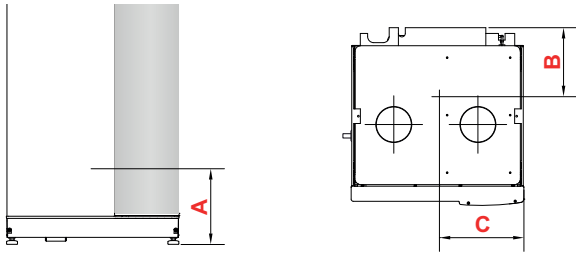


# Technical data

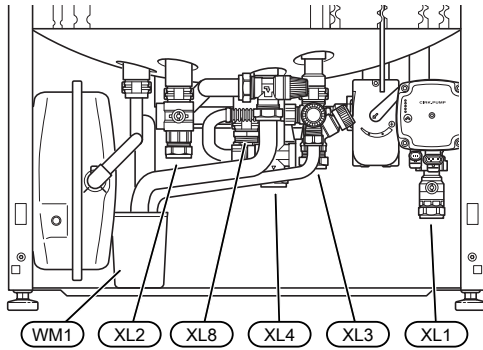
## Dimensions



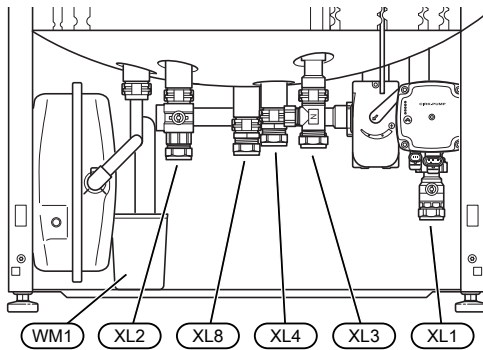
## Pipe connections



## Copper and stainless steel



## Enamel



## Setting out dimensions

### Copper

| Connection                |      | A   | B   | C   |
|---------------------------|------|-----|-----|-----|
| XL1 Heating medium supply | (mm) | 135 | 360 | 65  |
| XL2 Heating medium return | (mm) | 215 | 425 | 385 |
| XL3 Cold water            | (mm) | 225 | 455 | 215 |
| XL4 Hot water             | (mm) | 180 | 405 | 265 |
| XL8 Docking               | (mm) | 220 | 290 | 300 |
| WM1 Overflow cup          | (mm) | 95  | 205 | 430 |

### Stainless

| Connection                |      | A   | B   | C   |
|---------------------------|------|-----|-----|-----|
| XL1 Heating medium supply | (mm) | 135 | 360 | 65  |
| XL2 Heating medium return | (mm) | 215 | 425 | 385 |
| XL3 Cold water            | (mm) | 200 | 455 | 215 |
| XL4 Hot water             | (mm) | 180 | 405 | 265 |
| XL8 Docking               | (mm) | 220 | 290 | 300 |
| WM1 Overflow cup          | (mm) | 95  | 205 | 430 |

### Enamel

| Connection                |      | A   | B   | C   |
|---------------------------|------|-----|-----|-----|
| XL1 Heating medium supply | (mm) | 135 | 360 | 65  |
| XL2 Heating medium return | (mm) | 215 | 425 | 385 |
| XL3 Cold water            | (mm) | 230 | 455 | 215 |
| XL4 Hot water             | (mm) | 235 | 405 | 265 |
| XL8 Docking               | (mm) | 220 | 290 | 300 |
| WM1 Overflow cup          | (mm) | 95  | 205 | 430 |

## Pipe dimensions

| Connection                       |      |    |
|----------------------------------|------|----|
| XL1-XL2 Heating medium ext Ø     | (mm) | 22 |
| XL3 Cold water ext Ø             | (mm) | 22 |
| XL4 Hot water ext Ø              | (mm) | 22 |
| XL5 Hot water circulation ext. Ø | (mm) | 15 |
| XL8 Docking ext. Ø               | (mm) | 22 |
| WM2 Overflow water discharge     | (mm) | 32 |

## Technical data

The following data only applies to F370 3x400 V. F370 is also available in voltage version 3x230 V. Contact your NIBE dealer for more information.

| Type   |         | Copper    | Stainless       | Enamel     |
|--|---------|-----------|-----------------|------------|
| <b>Output data according to EN 14 511</b>                              |         |           |                 |            |
| Specified heating output ( $P_H$ ) <sup>1</sup>                        | kW      |           | 2.18            |            |
| COP <sup>1</sup>   |         |           | 3.93            |            |
| Specified heating output ( $P_H$ ) <sup>2</sup>                        | kW      |           | 2.03            |            |
| COP <sup>2</sup>   |         |           | 3.24            |            |
| Specified heating output ( $P_H$ ) <sup>3</sup>                        | kW      |           | 1.88            |            |
| COP <sup>3</sup>   |         |           | 2.74            |            |
| <b>Additional power</b>  |         |           |                 |            |
| Max power, immersion heater (factory setting)                          | kW      | 9.3 (4.6) | 10.3 (5.6)      | 10.3 (5.6) |
| <b>Energy rating, average climate</b>                                  |         |           |                 |            |
| Efficiency class room heating, average climate 35 / 55 °C              |         |           | A+ / A+         |            |
| The system's efficiency class room heating, average climate 35 / 55 °C |         |           | A+ / A+         |            |
| Declared tap profile / efficiency class hot water heating              |         |           | L / A           |            |
| <b>Electrical data</b>   |         |           |                 |            |
| Rated voltage  | V       |           | 400 V 3N ~ 50Hz |            |
| Enclosure class  |         |           | IP 21           |            |
| <b>Refrigerant circuit</b>   |         |           |                 |            |
| Type of refrigerant  |         |           | R290, propane   |            |
| Volume   | kg      |           | 0.4             |            |
| <b>Heating medium circuit</b>  |         |           |                 |            |
| Opening pressure, safety valve   | MPa/bar |           | 0.25 / 2.5      |            |
| Max temperature, supply line (factory setting)                         | °C      |           | 70 (60)         |            |
| <b>Ventilation</b>   |         |           |                 |            |
| Min. air flow at exhaust air temperature at least 20°C                 | l/s     |           | 28              |            |
| Min. air flow at exhaust air temperature below 20°C                    | l/s     |           | 31              |            |
| <b>Noise</b>   |         |           |                 |            |
| Sound effect level according to EN 12 102 ( $L_{W(A)}$ ) <sup>4</sup>  | dB(A)   |           | 46.5-48.0       |            |
| Sound pressure level in the boiler room ( $L_{P(A)}$ ) <sup>5</sup>    | dB(A)   |           | 42.5-44.0       |            |
| <b>Water heater and heating section</b>                                |         |           |                 |            |
| Volume heating section   | litre   |           | 70              |            |
| Volume, hot water heater   | litre   |           | 170             |            |
| Max pressure in hot water heater                                       | MPa/bar |           | 1.0 / 10.0      |            |
| <b>Capacity hot water heating</b>                                      |         |           |                 |            |
| Tap volume 40 °C according to EN 255-3( $V_{max}$ ) <sup>6,7</sup>     | litre   |           | 248             |            |
| Tap volume 40 °C according to EN 16 147( $V_{max}$ ) <sup>6,7</sup>    | litre   |           | 217             |            |
| <b>Miscellaneous</b>   |         |           |                 |            |
| Required ceiling height  | mm      |           | 2,270           |            |
| Weight   | kg      | 202       | 195             | 205        |
| Part No.   |         | 066 055   | 066 056         | 066 057    |

<sup>1</sup>A20(12)W35, exhaust air flow 56 l/s (200 m<sup>3</sup>/h)

<sup>2</sup>A20(12)W45, exhaust air flow 42 l/s (150 m<sup>3</sup>/h)

<sup>3</sup>A20(12)W55, exhaust air flow 31 l/s (110 m<sup>3</sup>/h)

<sup>4</sup>The value varies with the selected fan curve. For more extensive sound data including sound to channels visit [www.nibe.eu](http://www.nibe.eu).

<sup>5</sup> The value can vary with the room's damping capacity. These values apply at a damping of 4 dB.

<sup>6</sup>A20(12) exhaust air flow 42 l/s (150 m<sup>3</sup>/h)

<sup>7</sup>Comfort mode, normal

## Accessories

Not all accessories are available on all markets.

Detailed information about the accessories and complete accessories list available at [www.nibe.eu](http://www.nibe.eu).

### Docking kit DEH

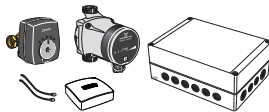
There are separate docking kits available for connecting other heat sources to the heat pump.

### Docking kit Solar 41

Solar 41 means that F370 together with e.g. NIBE UKVS 230 can be connected to thermal solar heating.

### Extra shunt group ECS 40/ECS 41

This accessory is used when F370 is installed in houses with two or more different heating systems that require different supply temperatures.



### District heating module FJVM 220

Supplements F370 when connecting to district heating.

### Communications module SMS 40

When there is no internet connection, you can use the accessory SMS 40 to control F370 via SMS.



### Room unit RMU 40

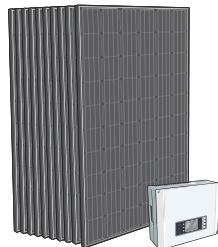
RMU 40 means that control and monitoring of F370 can be carried out in a different part of your home to where it is located.



### Solar package NIBE PV

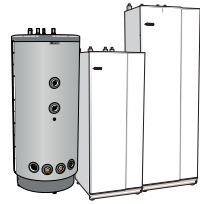
Solar panel package with extremely long service-life to produce your own electricity.

|                 |                 |                 |
|-----------------|-----------------|-----------------|
| <b>3 kW</b>     | <b>6 kW</b>     | <b>9 kW</b>     |
| 10 Solar panels | 20 Solar panels | 30 Solar panels |
| <b>12 kW</b>    | <b>21 kW</b>    |                 |
| 40 Solar panels | 70 Solar panels |                 |



## Water heater

For information regarding suitable water heaters, see [www.nibe.eu](http://www.nibe.eu).



## Top cabinet

Top cabinet that conceals the ventilation ducts.

