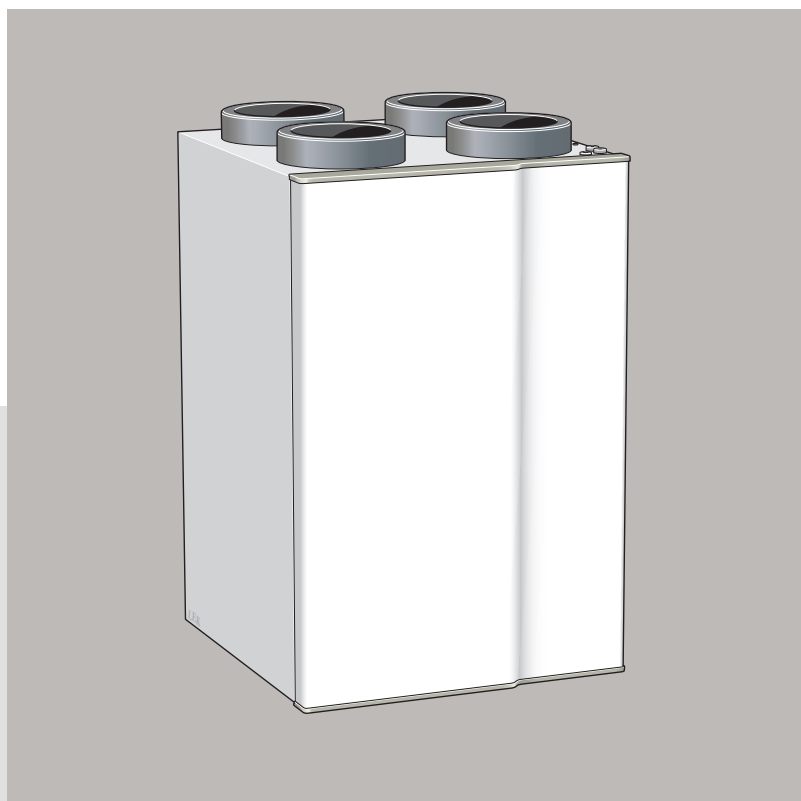


# Ventilation heat exchanger NIBE ERS 10-400





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# 1 Important information

## Safety information

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

The manual must be left with the customer.

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

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## SYMBOLS



### NOTE

This symbol indicates danger to person or machine .



### Caution

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



### TIP

This symbol indicates tips on how to facilitate using the product.

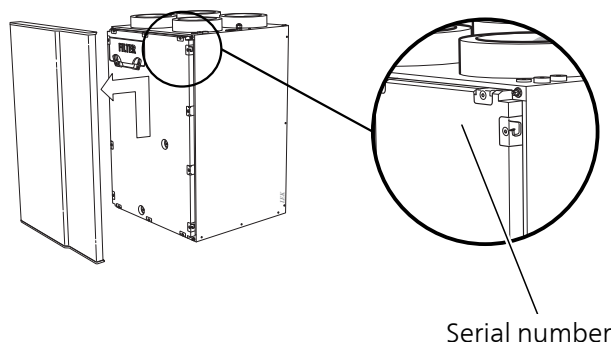
## MARKING

**CE** The CE mark is obligatory for most products sold in the EU, regardless of where they are made.

**IP21** Classification of enclosure of electro-technical equipment.

## Serial number

The serial number can be found at the top right inside the front hatch.



Serial number



### Caution

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

# Recovery



Leave the disposal of the packaging to the installer who installed the product or to special waste stations.



When disposing of the product, its constituent materials and components, e.g. compressors, fans, circulation pumps and circuit boards, must be disposed of at a special waste station or dealer who provides this type of service.

To access the separate components, refer to the section that shows the construction of the product. No special tools are required for access.

Improper disposal of the product by the user results in administrative penalties in accordance with current legislation.

## 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. In addition, fill in the page for the installation data in the User Manual.

✓	Description	Notes	Signature	Date
	Electricity (page 14)			
	Connections			
	Main voltage			
	Fuses property			
	Earth circuit-breaker			

## 2 Delivery and handling

### Transport and storage

ERS 10 should be transported and stored in the dry.

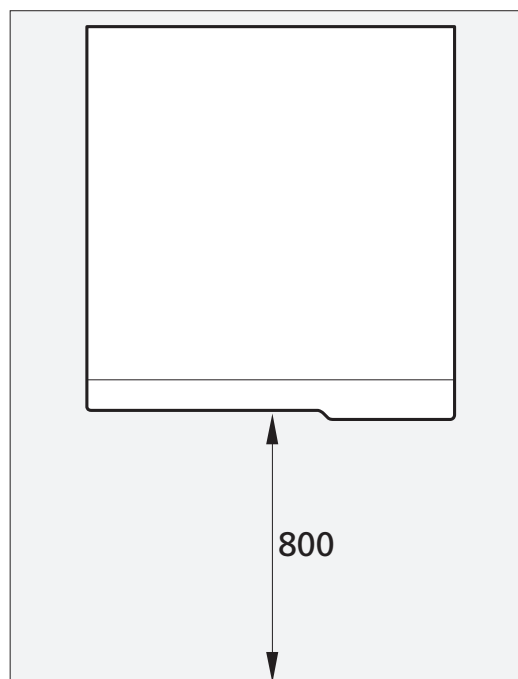
### Assembly

ERS 10 is installed using the enclosed rail on a solid wall. Noise from the fans can be transferred to the rail.

- 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.
- Condensation comes from the underside of the ventilation heat exchanger. Condensation outlet with water seal must be installed and routed to an internal drain.
- The ventilation heat exchanger's installation area should always have a temperature of at least 10 °C and max. 35 °C.

#### INSTALLATION AREA

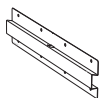
Leave a free space of 800 mm in front of the product.



#### NOTE

Ensure that there is necessary space (300 mm) above the exhaust ventilation heat exchanger for installing ventilation hoses.

# Supplied components Removing parts of the insulation

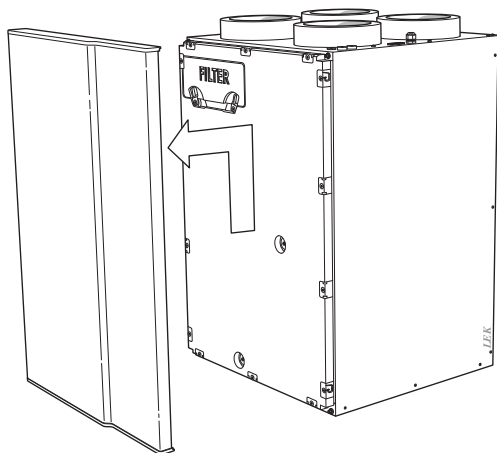


Rail for wall mounting

## Removing the covers

### FRONT COVER

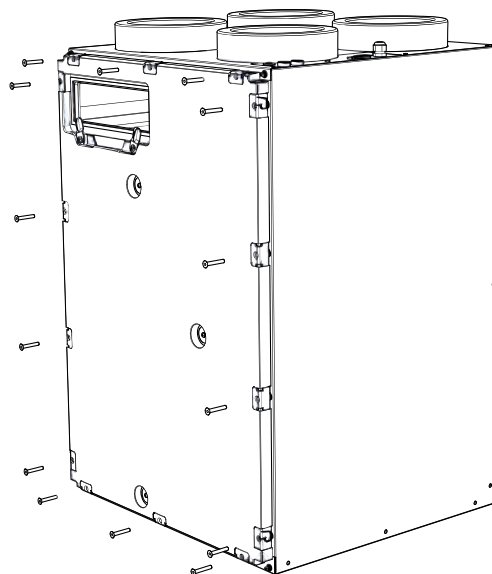
1. Lift the front cover upwards slightly.
2. Pull the hatch towards yourself.



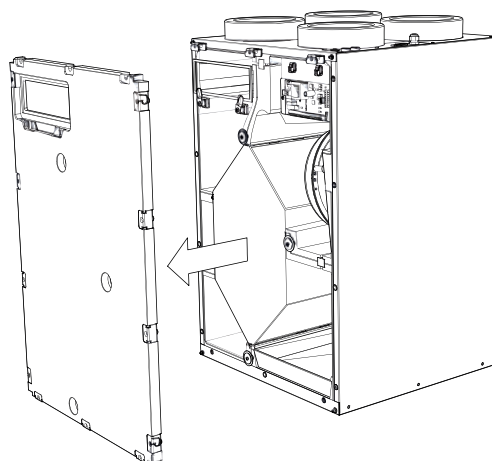
### FRONT INSULATION

The insulation in the front must be removed to access the internal parts.

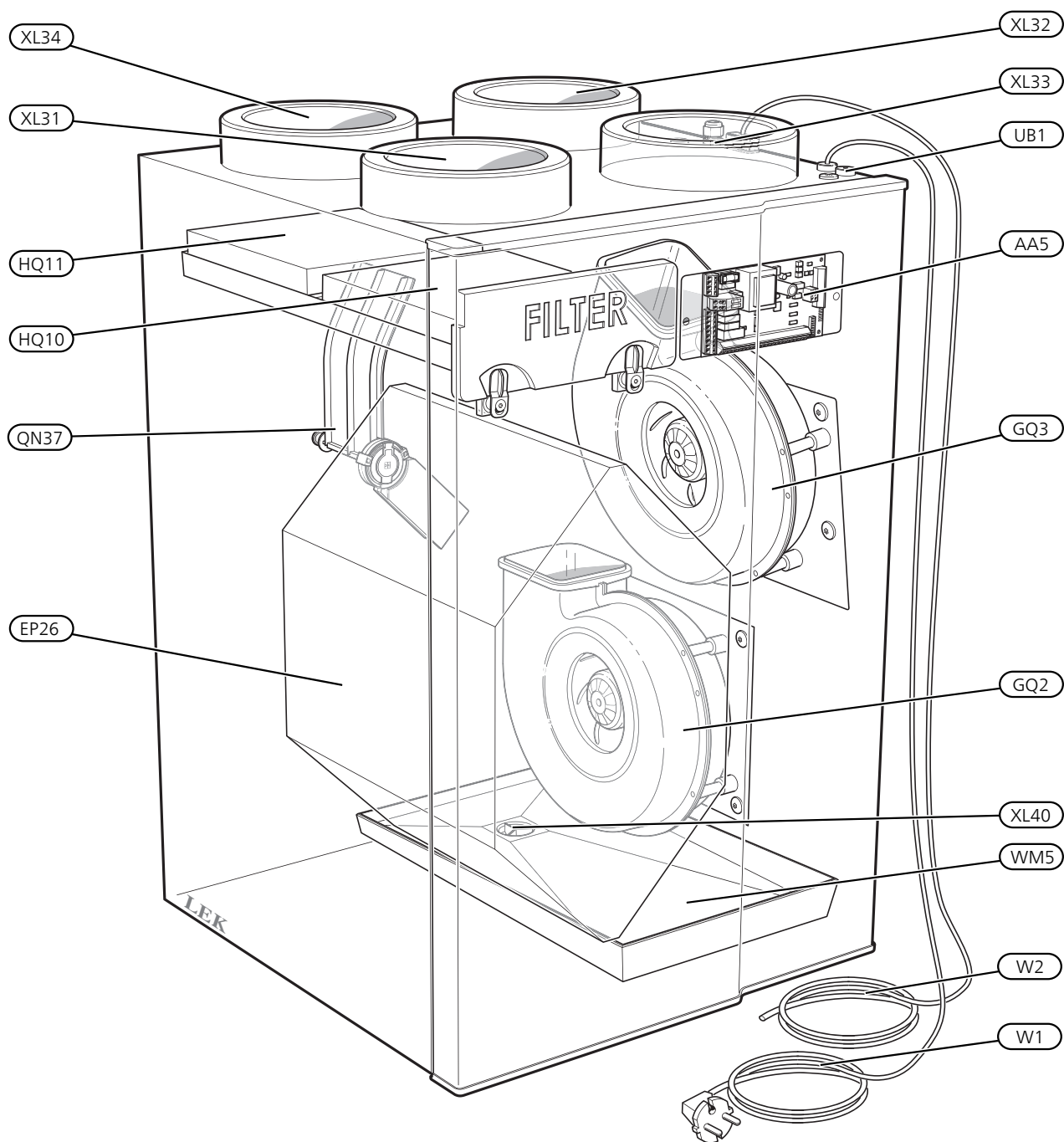
1. Remove the air filter.
2. Slacken off the screws that hold the insulation in place.



3. Pull the insulation straight out.



# 3 The ventilation heat exchanger design





## Pipe connections

XL31	Ventilation connection, exhaust air
XL32	Ventilation connection, extract air
XL33	Ventilation connection, supply air
XL34	Ventilation connection, outdoor air
XL40	Condensation water drain

## Sensors etc.

BT20	Temperature sensor, exhaust air
BT21	Temperature sensor, extract air
BT22	Temperature sensor, supply air
BT23	Temperature sensor, outdoor air

## Electrical components

AA5	Accessory card
UB1	Cable gland
W1	Cord with connection plug
W2	Communication cable

## Ventilation

EP26	Heat exchanger
GQ2	Exhaust air fan
GQ3	Supply air fan
HQ10	Exhaust air filter
HQ11	Supply air filter
QN37	Bypass damper

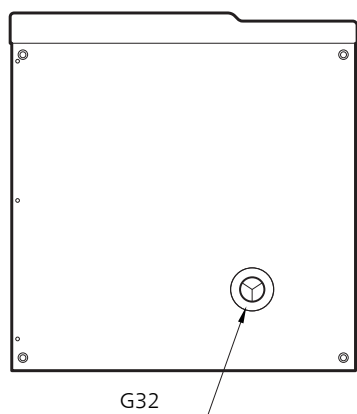
## Miscellaneous

PF1	Type plate
WM5	Condensation water trough

Designations according to standard EN 81346-2.

# 4 Pipe and ventilation connections

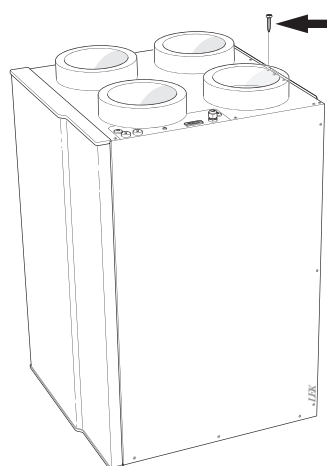
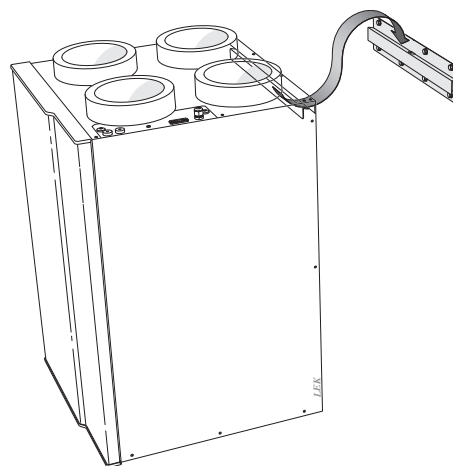
## Dimensions and pipe connections



## Mounting

When hanging on a wooden wall, a vibration damper is recommended to prevent vibration being transferred.

1. Install the enclosed bracket to the wall.
2. Install ERS 10 on the brackets.



# Condensation water drain

ERS 10 can produce several litres of condensation water per day. It is therefore important for the condensation outlet to be correctly executed and for the ventilation heat exchanger to be installed horizontally.

Check that the water seal is airtight and firmly in position. The connection must be made so that the user can check and top up the water seal, without opening ERS 10.

The condensation outlet is adapted for the type of water seal that is traditionally used for a wash basin (connection G32).

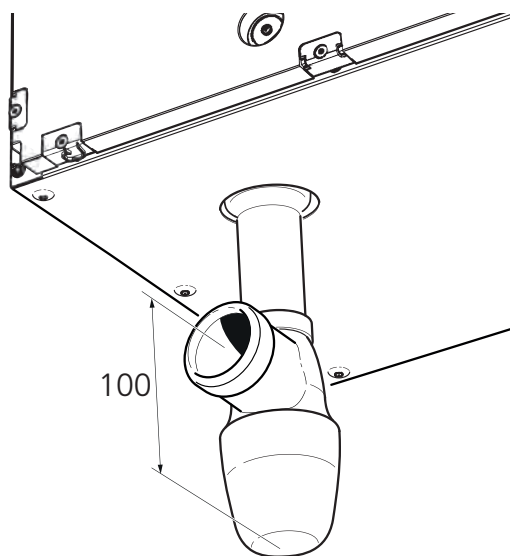
Installation from the water seal through to the drain must be carried out with an essential fall of 1 %. If the ventilation heat exchanger is installed in a cold area, the condensation water drain pipe must be insulated so that the condensation water in the pipe does not freeze. It is also recommended that the water seal is mounted in a heated area to guarantee that the water in the water seal does not freeze.

If it cannot be guaranteed that insulation will protect the condensation water drain pipe against frost, a thermostat controlled heating cable must be installed around the condensation water drain pipe.



## NOTE

During operation, negative pressure arises in the ventilation heat exchanger, which means that a water column of at least 100 mm must be guaranteed in the water seal.



# General ventilation connections

- Ventilation installation must be carried out in accordance with current norms and directives.
- Connections must be made via flexible hoses, which should be installed so that they are easy to replace.
- Provision must be made for inspection and cleaning of the duct.
- Make sure that there are no reductions of cross-sectional area in the form of creases, tight bends, etc., since this will reduce the ventilation capacity.
- The air duct system must be a minimum of air tightness class B.
- 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.
- The extract air and outdoor air ducts are insulated using diffusion-proof material (at least PE30 or equivalent) along their entire lengths.
- Ensure that the condensation insulation is fully sealed at any joints and/or at lead-in nipples, silencers, roof cowls or similar.
- The air must be routed to the outdoor air duct through an outer wall grille in the facade. The outer wall grille must be installed so that it is protected from the weather and must be designed so that no rainwater and/or snow can penetrate the facade or follow the air into the duct.
- When positioning the outdoor air and extract air hood/grille, bear in mind that the two air flows must not short circuit to prevent the extract air from being drawn into ERS 10 again.
- A duct in a masonry chimney stack must not be used for extract air or outdoor air.



## NOTE

To ensure a sealed connection to ERS 10, the supplied hose clips must be used for connecting the air ducts.

## EXHAUST AIR DUCT /KITCHEN FAN

Exhaust air duct (kitchen fan) must not be connected to ERS 10.

To prevent food vapour being transferred to ERS 10 the distance between the kitchen fan and the exhaust air device must be considered. The distance should not be less than 1.5 m, but this can vary between different installations.

Always use a kitchen fan when cooking.

## Ventilation flow

Connect ERS 10 so that all the exhaust air, except kitchen duct air (kitchen fan), passes through the heat exchanger (EP26) in the product.

The ventilation flow must comply with the applicable national standards.

The supply air flow must be lower than the exhaust air flow to prevent over pressure in the house.

Set the ventilation capacity in the main product's menu system (menu 5.1.5).

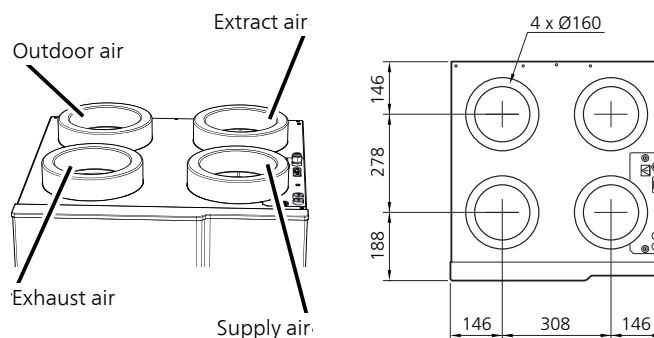
## Adjusting ventilation

To obtain the necessary air exchange in every room of the house, the exhaust air valve and the supply air inlet as well as the fans in the ventilation heat exchanger must be correctly positioned and adjusted.

Immediately after installation adjust the ventilation so that it is set according to the projected value of the house.

Incorrect adjustment of the ventilation may lead to reduced installation efficiency and thus poorer operating economy, and may cause moisture damage in the building

## Dimension and ventilation connections

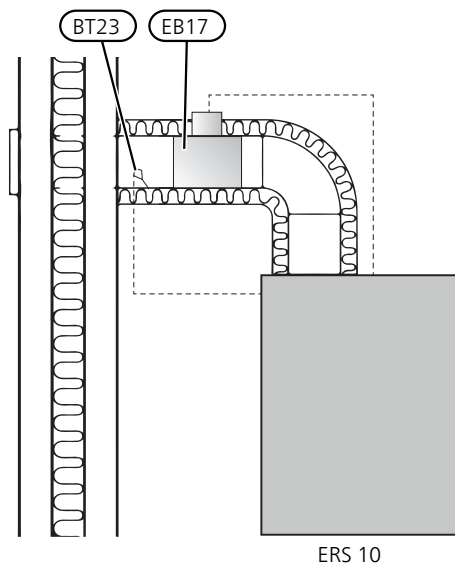


# Preheating the outdoor air

If the extract air temperature is too low, the supply air fan slows down to prevent the condensation water in the heat exchanger from freezing.

To prevent this from happening too often in areas with colder climates, an electrical air heater EAH (EB17) and an outdoor air sensor (BT23) should be installed in the outdoor air duct as illustrated. EAH heats the incoming outdoor air so that the extract air temperature does not fall to the stated level.

See the Installer Manual for EAH for more information.



# 5 Electrical connection



## NOTE

All electrical connections must be carried out by an authorised electrician.

Electrical installation and wiring must be carried out in accordance with the stipulations in force.

ERS 10 must not be powered during installation.



## NOTE

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



## NOTE

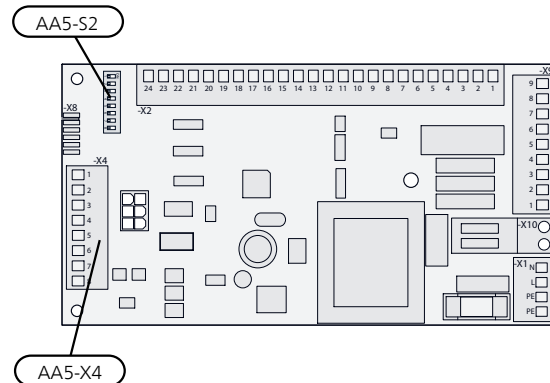
To prevent interference, sensor cables to external connections must not be laid close to high voltage cables.

For electrical wiring diagram, see page 23.

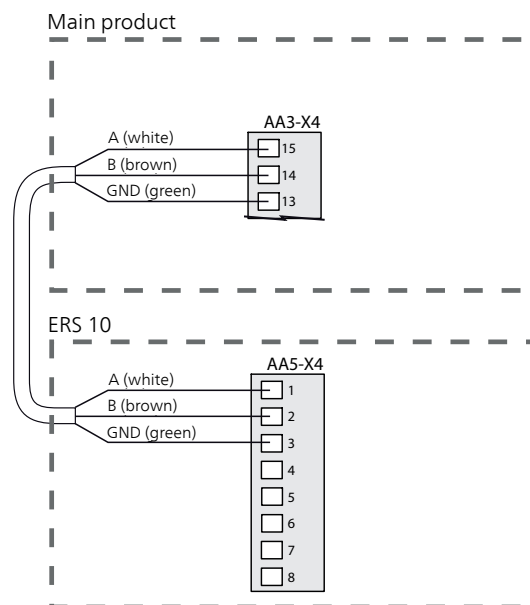
## Connecting to main product

If several accessories are to be connected, or are already connected, the following cards must be connected in series with the previous card.

Use cable type LiYY, EKKX or similar.

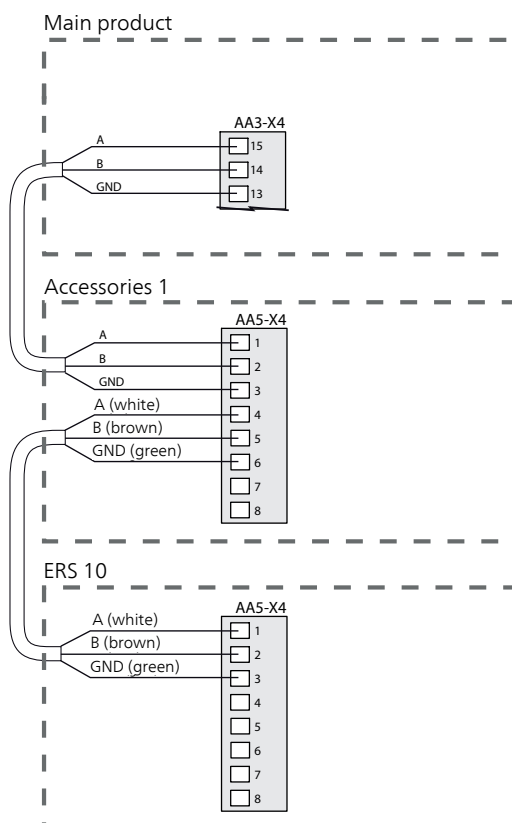


The communication cable (W2) in ERS 10 must be connected to the main product.



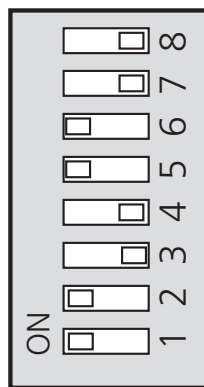
If more accessories are installed, ERS 10 must be connected last in the series, as illustrated.

The DIP switch (AA5-S2) must be set as follows.

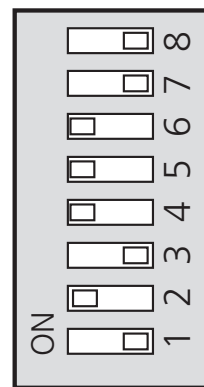


#### TIP

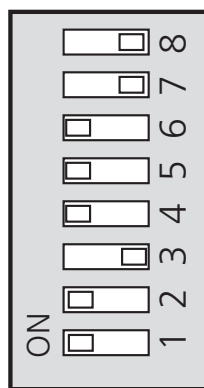
See the main product's Installer Manual for the location of the input board (AA3).



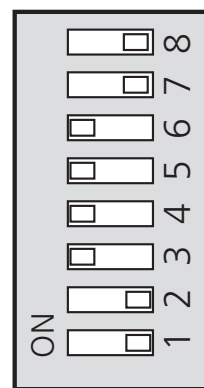
ERS 10 no. 1



ERS 10 no. 2



ERS 10 no. 3



ERS 10 no. 4

## Outside air sensor

When installing with an electrical preheater (EAH), disconnect the outdoor air sensor (BT23) in ERS 10.

The enclosed outdoor air sensor EAH is placed in the outdoor air duct and connected to the accessory board (AA5) according to the Installer Manual for EAH.

# 6 Commissioning and adjusting

## Preparations

- Check the miniature circuit-breaker (FA1) in the main product. It may have tripped during transportation.
- Check that the air filters are clean, they can become dirty after installation.

## Filling and venting

- Check that there is water in the water seal, fill if necessary.

## Start-up and inspection

### SETTING THE VENTILATION

Ventilation must be set according to applicable standards. The supply air flow is adjusted to ensure a negative pressure. The settings are made in menus 5.1.5 and 5.1.6.

Even if ventilation is roughly set at installation it is important that a ventilation adjustment is ordered and permitted.



#### Caution

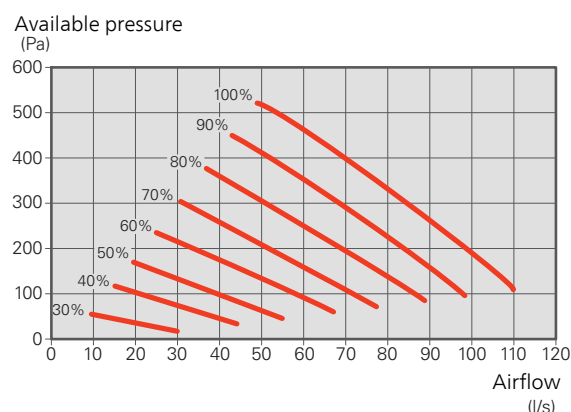
An incorrectly set ventilation flow can damage the house and may also increase energy consumption.



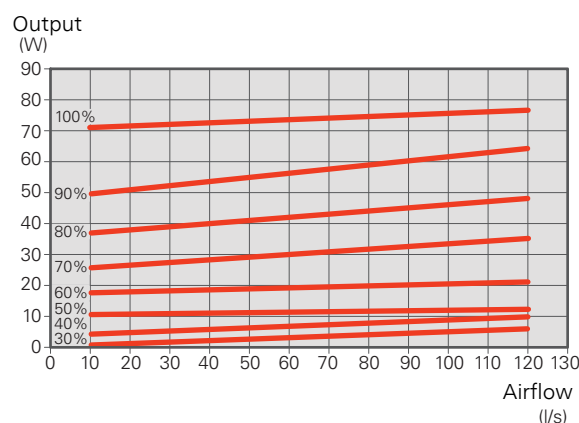
#### NOTE

Order a ventilation adjustment to complete the setting.

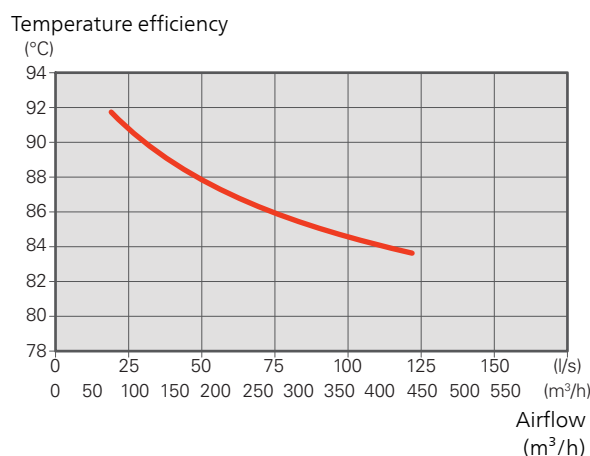
Ventilation capacity



Fan rating<sup>1</sup>



Dry temperature efficiency according to EN 308





# 7 Program settings

Program setting of ERS 10 can be performed via the start guide or directly in the menu system in the main product.



## *Caution*

See the documentation for the main product.

## Start guide

The start guide appears upon first start-up after heat pump installation, but is also found in menu 5.7.

## Menu system

If you do not make all settings via the start guide or need to change any of the settings, this can be done in the menu system.

### MENU 5.2.4 -SYSTEM SETTINGS

Activating/deactivating of accessories.

Activate: "exhaust/supply air module".

### MENU 5.3.12 - EXHAUST/SUPPLY AIR MODULE

Settings specific to ERS 10.

"Lowest extract air temp.": Set the minimum extract air temperature to prevent the heat exchanger freezing.

The supply air fan speed reduces if the extract air temperature at (BT21) is lower than the set value.

"Bypass at excess temperature": If a room sensor is installed, set the over-temperature at which the bypass damper (QN37) must open here.

"Months btwn filter alarms": Set how often the filter alarm must be displayed.



## *TIP*

When ERS 10 is activated, the other ventilation menus will also light up.

# 8 Disturbances in comfort

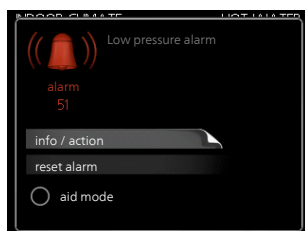
In most cases, the main product notes a malfunction (a malfunction can lead to disturbance in comfort) and indicates this with alarms and shows action instructions in the display.

## Info-menu

All the measurement values are gathered under menu 3.1 in the main product's menu system. Looking through the values in this menu can often simplify finding the source of the fault. See help menu or the main product's user manual for more information about menu 3.1.

## Manage alarm

In the event of an alarm, some kind of malfunction has occurred, which is indicated by the status lamp changing from green continuously to red continuously. In addition, an alarm bell appears in the information window.



### ALARM

In the event of an alarm with a red status lamp, a malfunction has occurred that the main product cannot remedy itself. By turning the control knob and pressing the OK button, you can see in the display what type of alarm it is and reset it. You can also choose to set the main product in aid mode.

**info / action** Here you can read what the alarm means and receive tips on what you can do to correct the problem that caused the alarm.

**reset alarm** In most cases it is enough to select "reset alarm" to correct the problem that caused the alarm. If a green light illuminates after selecting "reset alarm" the alarm has been remedied. If a red light is still visible and a menu called "alarm" is visible in the display, the problem that caused the alarm remains. If the alarm disappears and then returns, see the troubleshooting section (page 18).

**aid mode** "aid mode" is a type of emergency mode. This means that the heat pump produces heat and/or hot water despite there being some kind of problem with the heat pump. This can mean that the heat pump's compressor is not running. In this case the immersion heater produces heat and/or hot water.

Problems with ERS 10 do not affect the main product's operation. You therefore do not need to select "aid mode" in event of problems with ERS 10.



### Caution

Selecting "aid mode" is not the same as correcting the problem that caused the alarm. The status lamp will therefore continue to be red.

## Troubleshooting

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

### BASIC ACTIONS

Start by checking the following possible fault sources:

- That the main product is running and that the supply cable to ERS 10 is connected.
- Group and main fuses of the accommodation.
- The property's earth circuit breaker.
- The main product's fuses/temperature limiter.

### HIGH OR LOW ROOM TEMPERATURE

- See Installer Manual for the main product.

### LOW OR A LACK OF VENTILATION

- Filter blocked.
  - Clean or replace the filter.
- The ventilation is not adjusted.
  - Order/implement ventilation adjustment.
- Closed, too much choke or blocked ventilation device.
  - Check and clean the exhaust air devices.
- Fan speed in reduced mode.

- Enter the main product's menu 1.2 and select "normal".
- External switch for changing the fan speed activated.
  - Check any external switches.
- Fan running slow because of low incoming outdoor air temperature.
  - Check the function and settings for the electrical air heater (EAH) if installed.

## HIGH OR DISTRACTING VENTILATION

- Filter blocked.
  - Clean or replace the filter.
- The ventilation is not adjusted.
  - Order/implement ventilation adjustment.
- Closed, too much choke or blocked ventilation device.
  - Check and clean the exhaust air devices.
- Fan speed in forced mode.
  - Enter the main product's menu 1.2 and select "normal".
- External switch for changing the fan speed activated.
  - Check any external switches.
- Silencers not correctly installed.
  - Check the silencers.

# 9 Accessories

## ELECTRICAL AIR HEATER EAH 20

In cold weather, EAH 20-1800 heats the incoming outdoor air slightly to prevent the condensation in ERS 10 from freezing. Used mainly in colder climates.

Part no. 067 603

## TOP CABINET

Top cabinet that conceals the ventilation ducts and reduces the sound to the installation room.

*Height 245 mm*

Part no. 089 756

*Height 345 mm*

Part no. 089 757

*Height 445 mm*

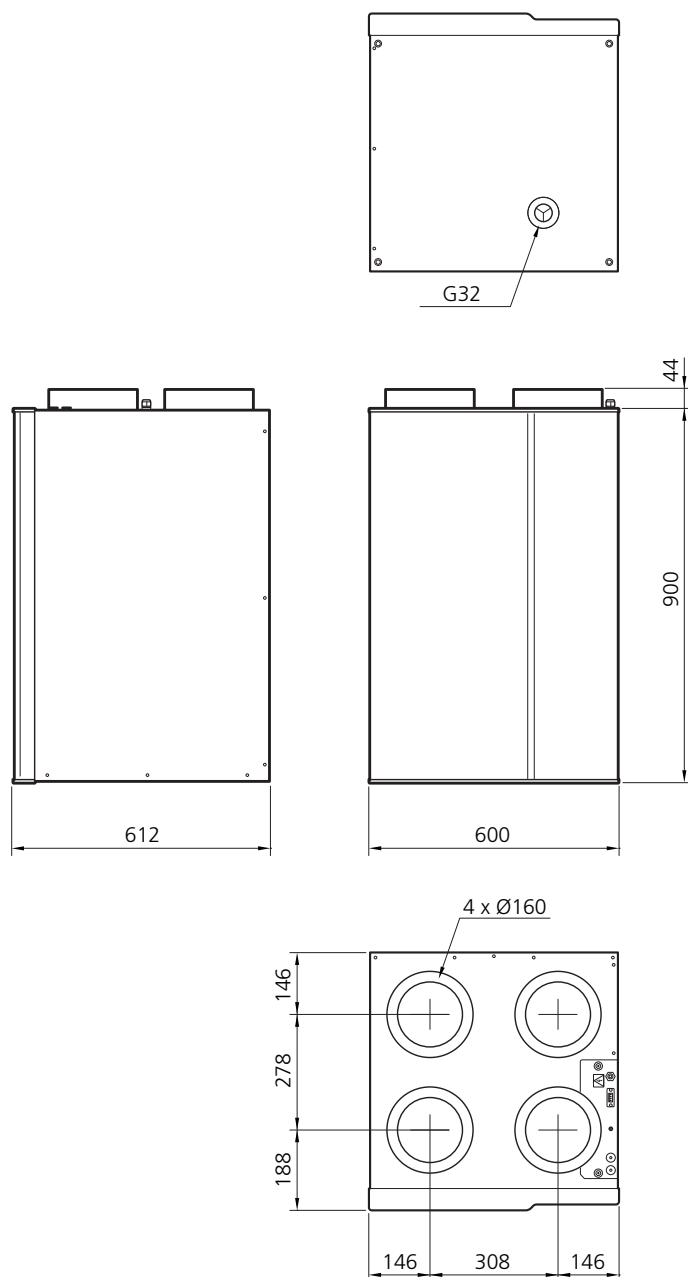
Part no. 067 522

*Height 385-635 mm*

Part no. 089 758

# 10 Technical data

## Dimensions



# Technical specifications

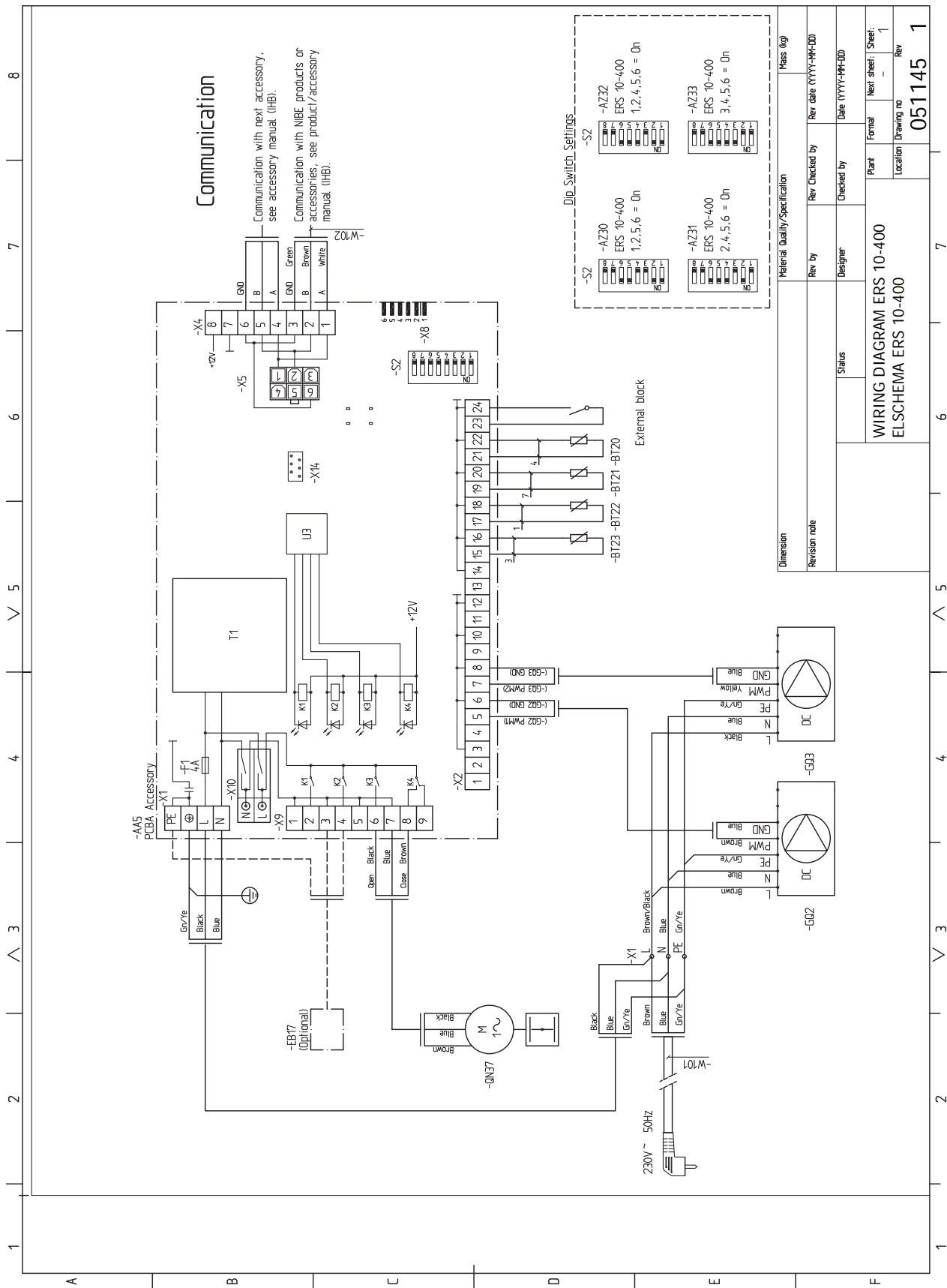
Type		ERS 10
<i>Electrical data</i>		
Supply voltage	V	230 V ~ 50Hz
Fuse	A	10
Driving power fan	W	2 x 85
Enclosure class		IP X1
<i>Ventilation</i>		
Filter type, exhaust air filter		Coarse 65%
Filter type, supply air filter		ePM1 55%
<i>Sound pressure levels</i>		
Sound pressure level ( $L_{P(A)}$ ) <sup>1</sup>	dB(A)	48
<i>Pipe connections</i>		
Ventilation Ø	mm	160
Condensation water drain		G32
<i>Dimensions and weight</i>		
Efficiency class <sup>2</sup>		A
Length, supply cable	m	2.4
Length, control cable	m	2.0
Width	mm	600
Depth	mm	612
Height	mm	900
Weight	kg	40
Part no.		066 115

<sup>1</sup> 277 m³/h (77 l/s) at 50 Pa

<sup>2</sup> Scale for efficiency class: A+ to G.

## Energy labelling

Supplier		NIBE
Model		ERS 10-400
Specific energy consumption (SEC)	kWh/(m² year)	Average: -37.5 Cold: -75.0 Warm: -13.4
Energy efficiency class		<b>A</b>
Declared typology		RVU, Bidirectional
Type of drive		Variable speed drive
Type of heat recovery system		Recuperative
Thermal efficiency of heat recovery		86
Maximum air flow rate	m³/h	394
Electric power input of the fan drive at maximum flow rate	W	163
Sound power level (LWA)	dB	47
Reference flow rate	m³/s	0.077
Reference pressure difference	Pa	50
Specific power input (SPI)	W/m³/h	0.242
Control factor and control typology		Clock control (0.95)
External leakage rates	%	Internal: 2.0 External: 1.6
Information about filter warning		See user manual.
Information about supply/exhaust grilles in the facade		See section General ventilation connections on page 12.
Information about pre-/disassembly		See section Recovery on page 5. This installer manual can also be accessed at nibe.eu.
The annual electricity consumption	kWh/year	318
Annual heating saved, kWh primary energy per year	kWh prim/year	Average: 4,483 Cold: 8,770 Warm: 2,027



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# Contact information

## *AUSTRIA*

KNV Energietechnik GmbH  
Gahberggasse 11, 4861 Schörfling  
Tel: +43 (0)7662 8963-0  
mail@knv.at  
knv.at

## *CZECH REPUBLIC*

Družstevní závody Dražice - strojírna  
s.r.o.  
Dražice 69, 29471 Benátky n. Jiz.  
Tel: +420 326 373 801  
nibe@nibe.cz  
nibe.cz

## *DENMARK*

Vølund Varmeteknik A/S  
Industrivej Nord 7B, 7400 Herning  
Tel: +45 97 17 20 33  
info@volundvt.dk  
volundvt.dk

## *FINLAND*

NIBE Energy Systems Oy  
Juurakkotie 3, 01510 Vantaa  
Tel: +358 (0)9 274 6970  
info@nibe.fi  
nibe.fi

## *FRANCE*

NIBE Energy Systems France SAS  
Zone industrielle RD 28  
Rue du Pou du Ciel, 01600 Reyrieux  
Tél: 04 74 00 92 92  
info@nibe.fr  
nibe.fr

## *GERMANY*

NIBE Systemtechnik GmbH  
Am Reiherpfahl 3, 29223 Celle  
Tel: +49 (0)5141 75 46 -0  
info@nibe.de  
nibe.de

## *GREAT BRITAIN*

NIBE Energy Systems Ltd  
3C Broom Business Park,  
Bridge Way, S41 9QG Chesterfield  
Tel: +44 (0)845 095 1200  
info@nibe.co.uk  
nibe.co.uk

## *NETHERLANDS*

NIBE Energietechnik B.V.  
Energieweg 31, 4906 CG Oosterhout  
Tel: +31 (0)168 47 77 22  
info@nibenl.nl  
nibenl.nl

## *NORWAY*

ABK AS  
Brobekkveien 80, 0582 Oslo  
Tel: (+47) 23 17 05 20  
post@abkklima.no  
nibe.no

## *POLAND*

NIBE-BIAWAR Sp. z o.o.  
Al. Jana Pawła II 57, 15-703 Białystok  
Tel: +48 (0)85 66 28 490  
biawar.com.pl

## *RUSSIA*

EVAN  
bld. 8, Yuliusa Fuchika str.  
603024 Nizhny Novgorod  
Tel: +7 831 419 57 06  
kuzmin@evan.ru  
nibe-evan.ru

## *SWEDEN*

NIBE Energy Systems  
Box 14  
Hannabadsvägen 5, 285 21 Markaryd  
Tel: +46 (0)433-27 3000  
info@nibe.se  
nibe.se

## *SWITZERLAND*

NIBE Wärmetechnik c/o ait Schweiz  
AG  
Industriepark, CH-6246 Altishofen  
Tel. +41 (0)58 252 21 00  
info@nibe.ch  
nibe.ch

For countries not mentioned in this list, contact NIBE Sweden or check [nibe.eu](http://nibe.eu) for more information.

NIBE Energy Systems  
Hannabadsvägen 5  
Box 14  
SE-285 21 Markaryd  
info@nibe.se  
nibe.eu

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