

HRV unit

NIBE ERS S10-400



S-series



F-series



S-series Table of Contents

1	Important information _____	4	8	Disturbances in comfort _____	18
	Safety information _____	4		Troubleshooting _____	18
	Symbols _____	4			
	Marking _____	4	9	Accessories _____	19
	Serial number _____	4			
	Recovery _____	4	10	Technical data _____	20
	Inspection of the installation _____	5		Dimensions _____	20
				Technical specifications _____	21
2	Delivery and handling _____	6		Energy labelling _____	22
	Transport and storage _____	6		Electrical circuit diagram _____	23
	Supplied components _____	6			
	Compatible products _____	6			
	Removing the covers _____	6			
	Removing parts of the insulation _____	6			
	Assembly _____	7			
	Mounting _____	7			
3	Design of the HRV unit _____	8		Contact information _____	47
	Pipe connections _____	9			
	Sensors etc. _____	9			
	Electrical components _____	9			
	Ventilation _____	9			
	Miscellaneous _____	9			
4	Ventilation connections _____	10			
	Condensation water drain _____	10			
	General ventilation connections _____	10			
	Ventilation flow _____	10			
	Adjusting ventilation _____	11			
	Ventilation connections _____	11			
5	Electrical connection _____	12			
	Overview accessory board (AA5) _____	12			
	Supply _____	12			
	Connecting to main product _____	13			
6	Commissioning and adjusting _____	15			
	Preparations _____	15			
	Filling _____	15			
	Start-up and inspection _____	15			
7	Activating ERS S10 _____	16			
	Start guide _____	16			
	Menu system _____	16			

S

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.

This is an original manual. It may not be translated without the approval of NIBE. Rights to make any design or technical modifications are reserved.

©NIBE 2023.

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

Symbols

Explanation of symbols that may be present in this manual.



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

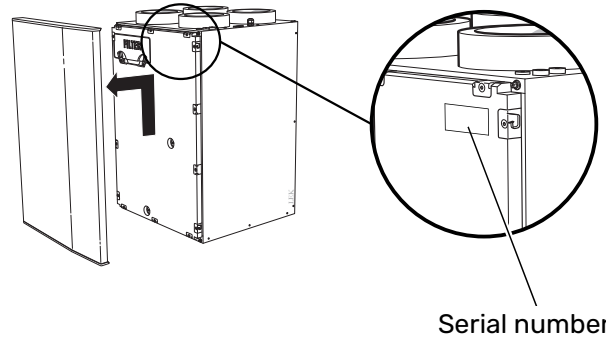
Explanation of symbols that may be present on the product's label(s).



Read the User Manual.

Serial number

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



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.

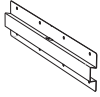
✓	Description	Notes	Signature	Date
	Electricity (page 12)			
	Connections			
	Main voltage			
	Fuses property			
	Earth circuit-breaker			

Delivery and handling

Transport and storage

ERS S10 should be transported and stored in the dry.

Supplied components



Rail for wall mounting

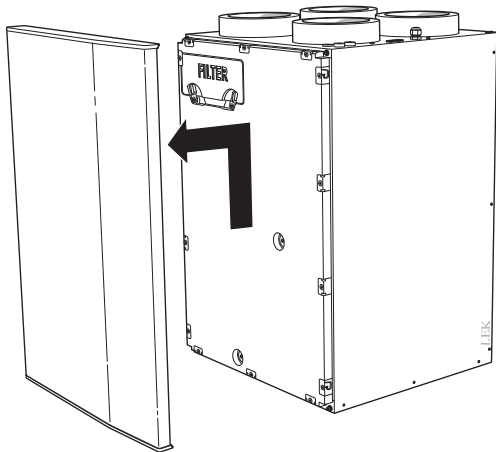
Compatible products

- S1155
- S1255
- VVM S320
- VVM S325
- SMO S40

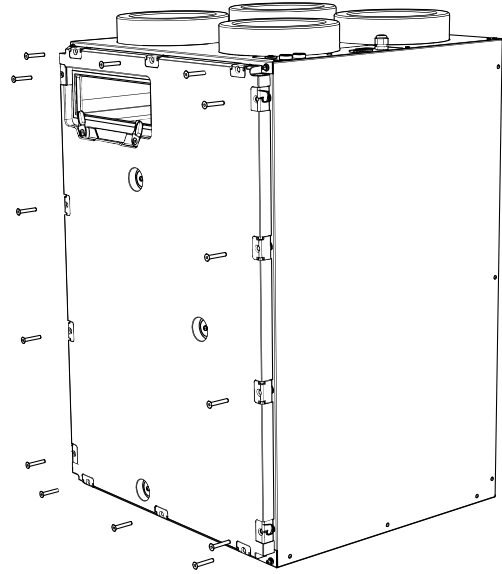
Removing the covers

FRONT COVER

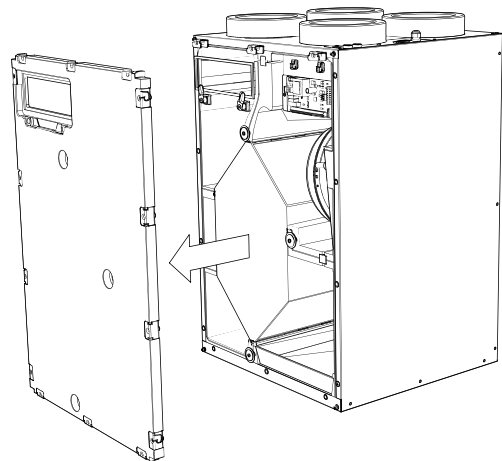
1. Lift the front cover upwards slightly.
2. Pull the hatch towards yourself.



2. Slacken off the screws that hold the insulation in place.



3. Pull the insulation straight out.

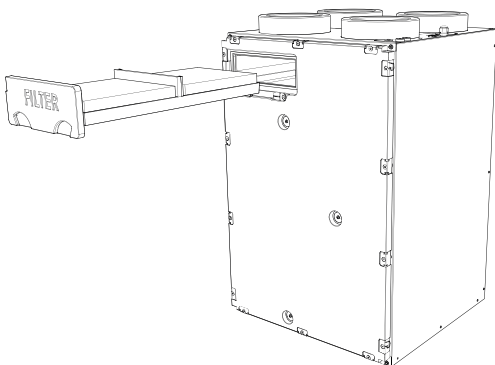


Removing parts of the insulation

FRONT INSULATION

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

1. Remove the air filter.



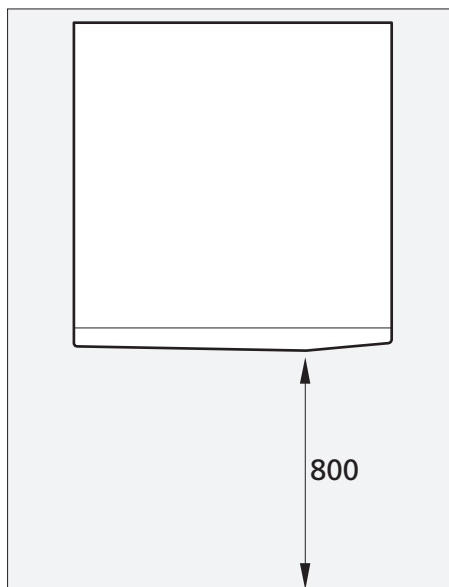
Assembly

ERS S10 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 water comes from the HRV unit. A condensation outlet with a water seal must be installed and routed to an internal drain.
- The HRV unit's installation area always has to 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.



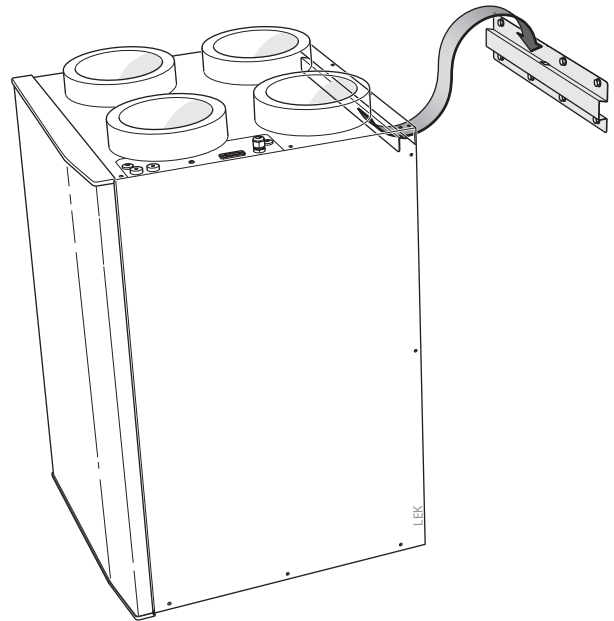
NOTE

Ensure that there is sufficient space (300 mm) for connecting ventilation ducts.

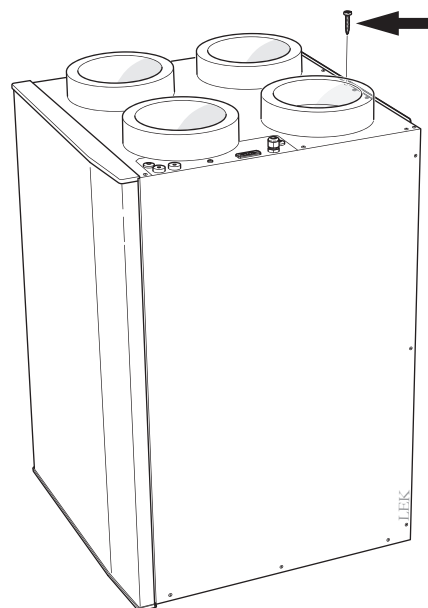
Mounting

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 S10 on the brackets.

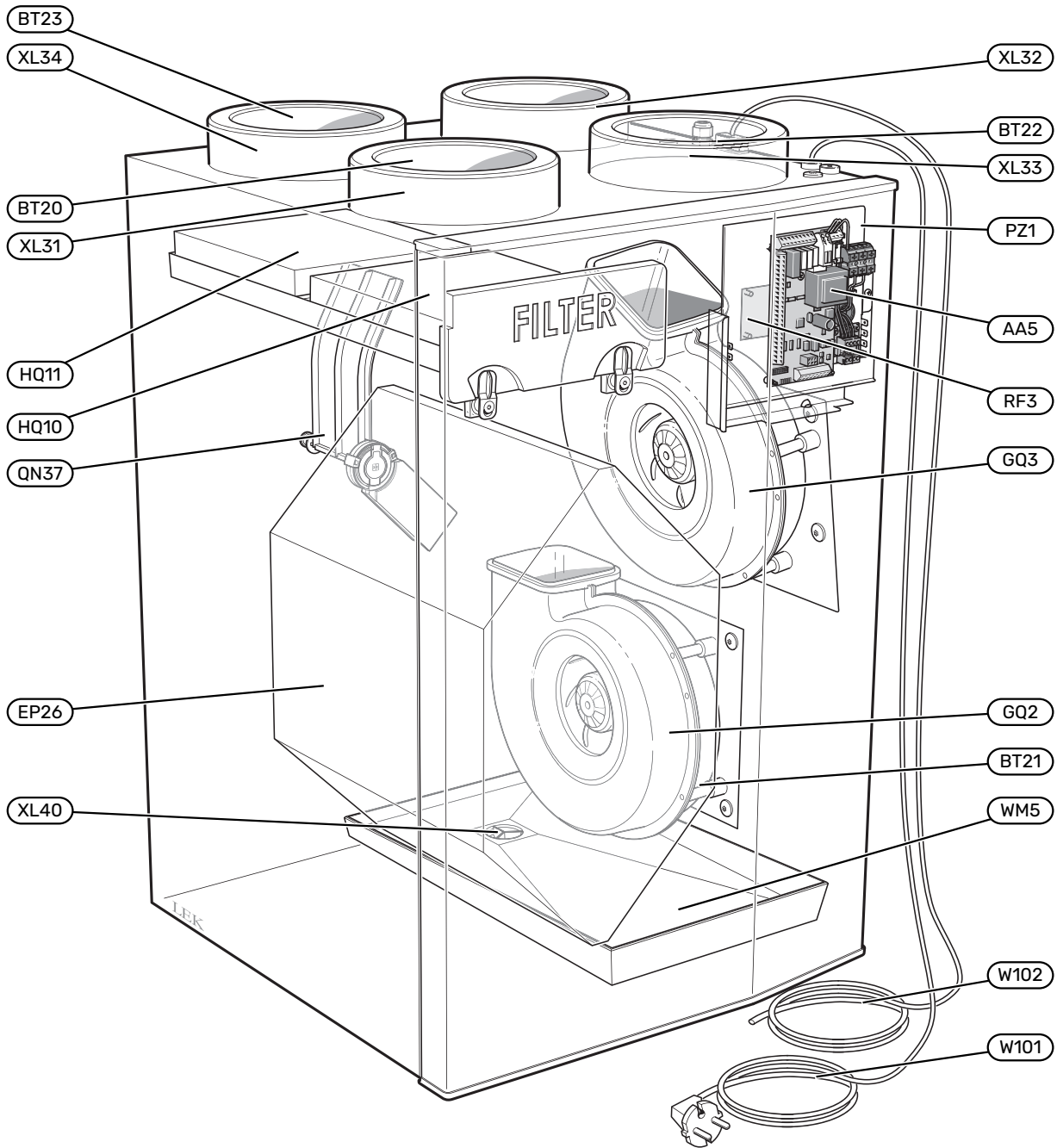


3. Screw ERS S10 firmly into place on the bracket.



Design of the HRV unit

S



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
RF3	EMC card
W101	Cord with connection plug
W102	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

PZ1	Type plate
WM5	Condensation water trough

Designations according to standard EN 81346-2.

Ventilation connections

Condensation water drain

ERS S10 can produce several litres of condensation water per day. It is therefore important that the condensation outlet is correctly executed and the HRV unit 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 S10.

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

CLEANING THE CONDENSATION WATER DRAIN

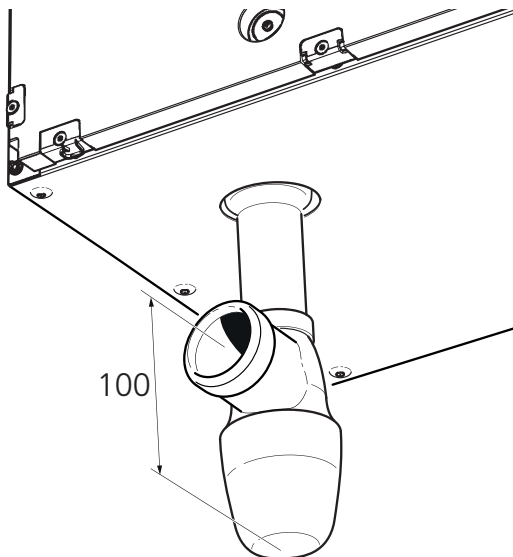
Condensation forms when ERS S10 is working. This condensation is led off and collected in the condensation water drain. Apart from water, a certain amount of dust and particles also collect there.

Check regularly that the condensation water drain and any floor drains are not blocked; water must be able to run through freely. Clean, if necessary.



NOTE

During operation, negative pressure arises in the HRV unit, 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.
- Provision must be made for inspection and cleaning of the duct.
- The air duct system must be a minimum of air tightness class B.
- To prevent fan noise being transferred to the ventilation devices, install silencers in suitable locations in the duct system.
- The extract air and outdoor air ducts are insulated using diffusion-proof material 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 S10 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 S10, 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 S10.

To prevent cooking odours from being led to the ERS S10, the distance between the kitchen fan and the exhaust air valve must be taken into consideration. The distance must not be less than 1.5 m, but may vary between different installations.

Always use a kitchen fan when cooking.

Ventilation flow

Connect ERS S10 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 7.1.4 - "Ventilation").

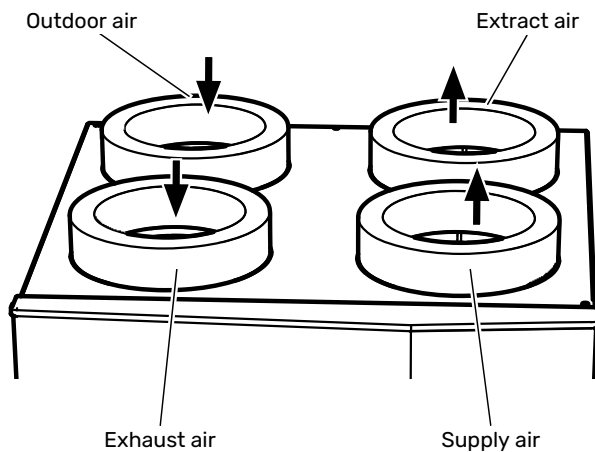
Adjusting ventilation

To obtain the necessary air exchange in every room of the building, the exhaust air valve and the supply air inlet as well as the fans in the HRV unit 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, a poorer indoor climate and moisture damage in the building.

Ventilation connections



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 national provisions.

ERS S10 must not be powered during installation.



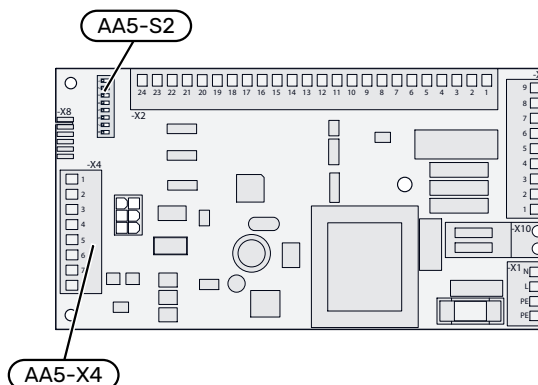
NOTE

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

- To prevent interference, sensor cables to external connections must not be laid close to high voltage cables.
- The minimum area of communication and sensor cables to external connections must be 0.5 mm² up to 50 m, for example EKKX, LiYY or equivalent.

For electrical wiring diagram, see page 23.

Overview accessory board (AA5)



Supply

ERS S10 is connected to a earthed single-phase wall socket or a permanent installation. For permanent installations, ERS S10 must be preceded by a circuit breaker with at least a 3 mm breaking gap.

S

Connecting to main product

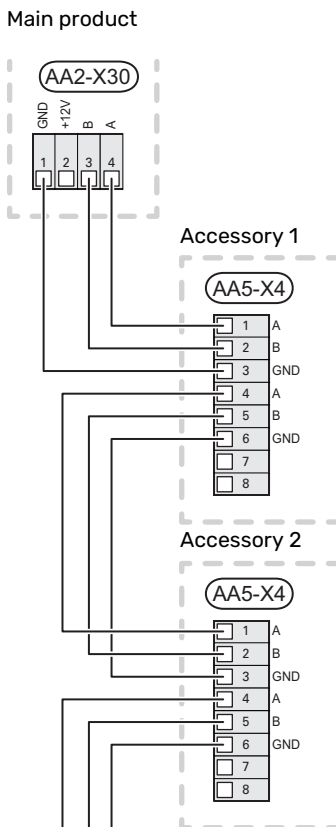
CONNECTING TO THE HEAT PUMP

ERS S10 contains an accessory board (AA5) that connects directly to the main product's PCB (terminal block AA2-X30).

The communication cable (W102) is connected to the accessory board (AA5) from the factory.

If several accessories are to be connected, or are already installed, the boards are connected in series.

Because there can be different connections for accessories with accessory board (AA5), you should always read the instructions in the manual for the accessory that is to be installed.



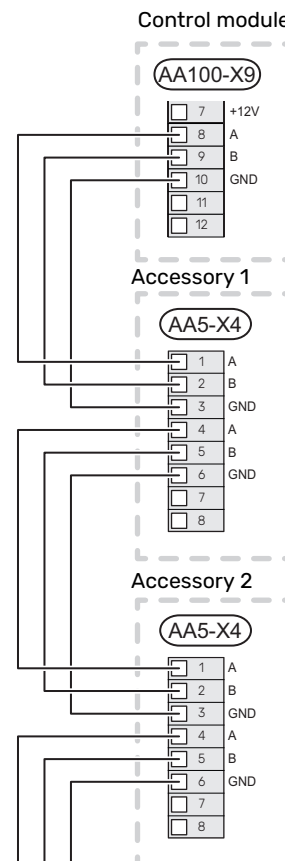
CONNECTING TO CONTROL MODULE

ERS S10 contains an accessory board (AA5) that connects directly to the control module on its joint board (terminal block AA100-X9).

The communication cable (W102) is connected to the accessory board (AA5) from the factory.

If several accessories are to be connected, or are already installed, the boards are connected in series.

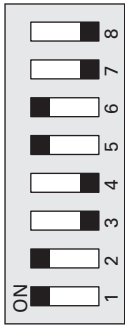
Because there can be different connections for accessories with accessory board (AA5), you should always read the instructions in the manual for the accessory that is to be installed.



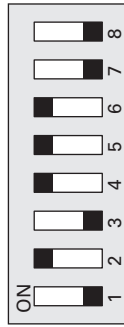
DIP SWITCH

The DIP switch (S2) on the accessory board (AA5) must be set as follows.

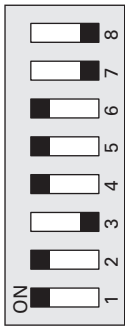
You can have up to 8 ERS S10 in the same installation, each ERS S10 is given a unique setting.



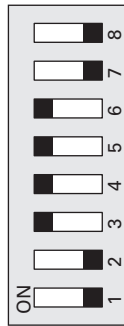
ERS S10 no. 1



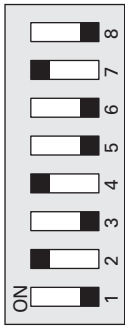
ERS S10 no. 2



ERS S10 no. 3



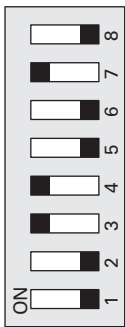
ERS S10 no. 4



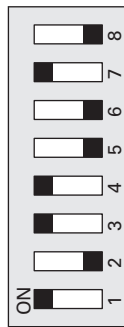
ERS S10 no. 5



ERS S10 no. 6



ERS S10 no. 7



ERS S10 no. 8

Commissioning and adjusting

Preparations

- Check the miniature circuit-breaker (FC1) in the main product. It may have tripped during transportation.
- Check that the air filters are clean, they can become dirty after installation.

Filling

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

Start-up and inspection

SETTING THE VENTILATION

The ventilation must be set according to applicable standards. Adjust the supply air flow to guarantee a negative pressure.

The settings are made in menu 7.1.4.

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



Caution

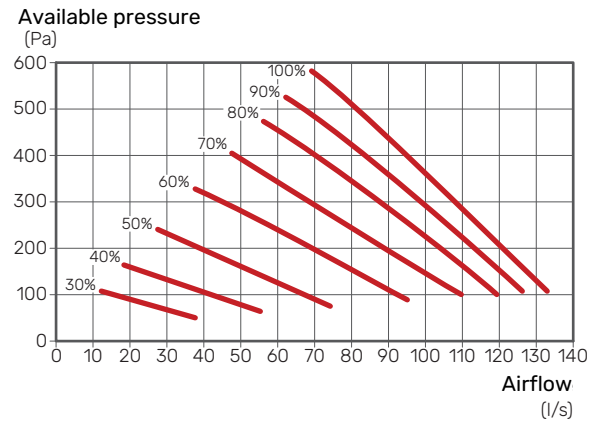
An incorrectly set ventilation flow can damage the house and may also increase energy consumption.



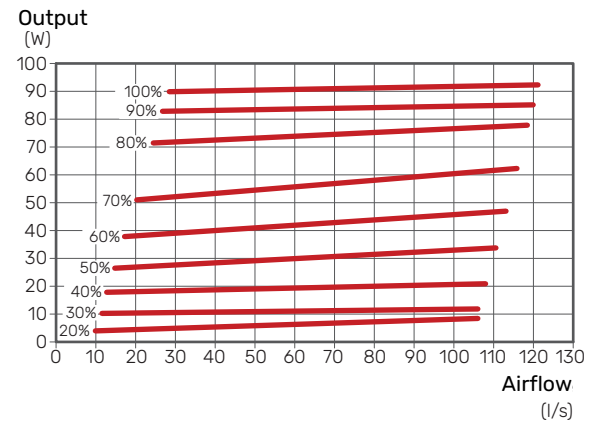
NOTE

Order a ventilation adjustment to complete the setting.

Ventilation capacity



Fan rating¹



¹The diagram shows the power consumption per fan.

Activating ERS S10

Activating ERS S10 can be performed via the start guide or directly in the menu system.

The main product's software must be the latest version.



Caution

Also see the Installer Manual for the main product.

Start guide

The start guide appears upon first start-up after heat pump installation, but is also found in menu 7.7.

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 7.2.1 - ADD/REMOVE ACCESSORIES

Activating/deactivating of accessories.

Select "ERS S10/20/30 1" - "ERS S10/20/30 8".

MENU 7.2.11 - VENT. HEAT EXCHANGER (ERS)

Lowest extract air temp.

Setting range: 0 – 10 °C

Product

Setting range: ERS10, ERS20/ERS30

Action external blocking

Setting range: Level monitor/Blocked/Off

Lowest extract air temp.: Set the lowest extract air temperature to prevent the build-up of ice on the heat exchanger.

Action external blocking: ERS S10 has no built-in level monitor, although it is possible to connect an external one via AUX; the fans stop when the AUX input is closed. When "level monitor" is selected, the product issues an alert when the input closes; when "blocking" is selected, text is displayed instead in operating info.

MENU 1.2.1 - FAN SPEED

Alternatives: normal and speed 1 – speed 4

The ventilation in the accommodation can be temporarily increased or reduced here.

When you have selected a new speed a clock starts a count down. When the time has counted down the ventilation speed returns to the normal setting.

If necessary, the different return times can be changed in menu 1.2.5.

The fan speed is shown in brackets (in percent) after each speed alternative.

MENU 1.2.2 - NIGHT COOLING

Night cooling

Setting range: on/off

Start temp exhaust air

Setting range: 20 – 30 °C

Min. diff. ind. temp. - outd. temp.

Setting range: 3 – 10 °C

Night cooling during heating

Setting range: on/off

Here, you can activate night cooling. When the temperature in the house is high, and the outdoor temperature is lower, a cooling effect can be obtained by forcing the ventilation. When night cooling is activated, the fans run at the speed 4. For activated night cooling, the bypass damper (QN37) is open.

Start temp exhaust air: Here, you set the exhaust air temperature at which night cooling will start.

Min. diff. ind. temp. - outd. temp.: If the temperature difference is greater than the set value for "Min. diff. ind. temp. - outd. temp.", and the exhaust air temperature is higher than the set value for "Start temp exhaust air", the ventilation operates at speed 4 until one of these conditions is no longer valid.

Night cooling during heating: It is possible to have night cooling during the time heating is permitted.

MENU 1.2.5 - FAN RETURN TIME

speed 1 – speed 4

Setting range: 1 – 24 h

Here, you select the return time for the temporary change of ventilation speed (speed 1 – speed 4), regardless of whether the speed has been changed in menu 1.2.1 - "Fan speed", via the home screen or via myUplink.

Return time is the time it takes before the temporary ventilation speed returns to normal speed.

MENU 1.2.6 - FILTER CLEANING INTERVAL

Months between filter cleaning

Setting range: 1 – 24 months

The filters in ERS S10 are of a type that should not be cleaned; they have to be replaced instead. These must be replaced regularly, although how often depends of factors such as the amount of particles in the ventilation air. Test to find out what is most appropriate for your installation.

Set the interval for the reminder in this menu.

The menu shows the time remaining until the next reminder, and you can also reset active reminders.

MENU 1.2.7 - VENTILATION RECOVERY

Temp stop of heat recovery

Setting range: 5 – 30 °C

Min. diff. ind. temp. - outd. temp.

Setting range: 2 – 10 °C

Recovery stop during heating

Setting range: on/off

Cooling recovery

Setting range: on/off

St temp sup air cooled by exh air

Setting range: -20.0 – 41.0 °C

Min diff outd and exhaust air

Setting range: 3.0 – 10.0 °C

When there is no heating demand, and the outdoor temperature is approaching the indoor temperature, heat recovery is stopped to prevent the house from being heated further.



Caution

Only the heat recovery is stopped, not the ventilation.

Temp stop of heat recovery: Here, you set the outside temperature at which ventilation recovery is to stop.

Min. diff. ind. temp. - outd. temp.: Here, you set the temperature difference between the indoor air and the outdoor air that is required in order for ventilation recovery to start.

Recovery stop during heating: Stopping ventilation recovery during the time heating is permitted is possible.

Cooling recovery: When there is no heating demand, ventilation recovery is stopped to prevent the house from being heated further. When it is warm indoors and even warmer outdoors, ERS S10 can be used to prevent the house from heating up more than necessary. During cooling recovery, the cooler air from the house is used to cool the incoming air.

"Cooling recovery" is started when the exhaust air temperature is a certain number of degrees below the outdoor temperature and it is warm outside.

St temp sup air cooled by exh air: Here, you set the outdoor temperature at which cooling recovery will start.



Caution

"St temp sup air cooled by exh air" cannot be lower than "Stop heating" in menu 7.1.10.2 – "Auto mode setting".

Min diff outd and exhaust air: Here, you set the temperature difference between outdoor air and exhaust air that is required in order for cooling recovery to start.

MENU 7.1.4.1 - FAN SPEED, EXHAUST AIR

Fan speed

"Normal" and "Fan speed 1" – "Fan speed 4"

Setting range: 0 – 100%

Set the speed for the five different selectable speeds for the fan here.

MENU 7.1.4.2 - FAN SPEED, SUPPLY AIR

Fan speed

"Normal" and "Fan speed 1" – "Fan speed 4"

Setting range: 0 – 100%

Set the speed for the five different selectable speeds for the fan here.

MENU 6.2 - SCHEDULING

In this menu, you schedule repeated changes of ventilation.



Caution

A schedule repeats according to the selected setting (e.g. every Monday) until you go into the menu and switch it off.

MENU 7.4 - SELECTABLE IN/OUTPUTS

Select here whether you want to activate fan speed for the relevant AUX input.

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.

Troubleshooting

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

BASIC ACTIONS

Start by checking the following items:

- That the main product is running and that the supply cable to ERS S10 is connected.
- Group and main fuses of the accommodation.
- The property's earth circuit breaker.
- The main product's fuses.
- The main product's temperature limiter.

LOW OR A LACK OF VENTILATION

- The exhaust air filter (HQ10) and/or the supply air filter (HQ11) is clogged.
 - Replace the filters.
- The ventilation is not adjusted.
 - Order/implement ventilation adjustment.
- Closed, too much choke or blocked ventilation device.
 - Check and clean the ventilation devices.
- Fan speed in reduced mode.
 - Enter the main product's menu 1.2.1 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 20) if installed.

HIGH OR DISTRACTING VENTILATION

- The exhaust air filter (HQ10) and/or the supply air filter (HQ11) is clogged.
 - Replace the filters.
- 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 1.2.1 and select "Normal".
- External switch for changing the fan speed activated.
 - Check any external switches.
- Silencers not correctly installed.
 - Check the silencers.

Accessories

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

Not all accessories are available on all markets.

ELECTRICAL AIR HEATER EAH 20

In cold weather, EAH heats the incoming outdoor air slightly to prevent the condensation in ERS S10 from freezing to form ice. EAH should be used in houses where the outdoor temperature can be continuously lower than -5°C .

EAH 20-1800

(300-1800 W)

Part no. 067 603

TOP CABINET TOC 40

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

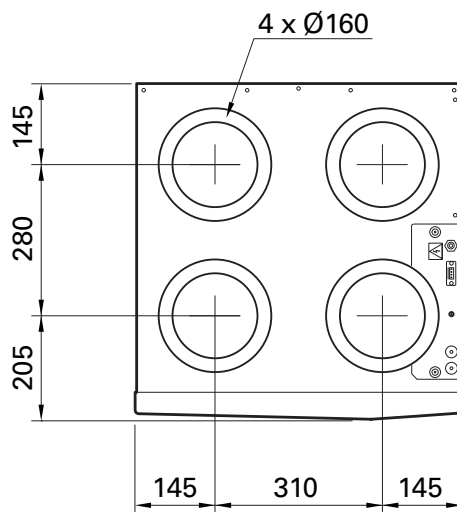
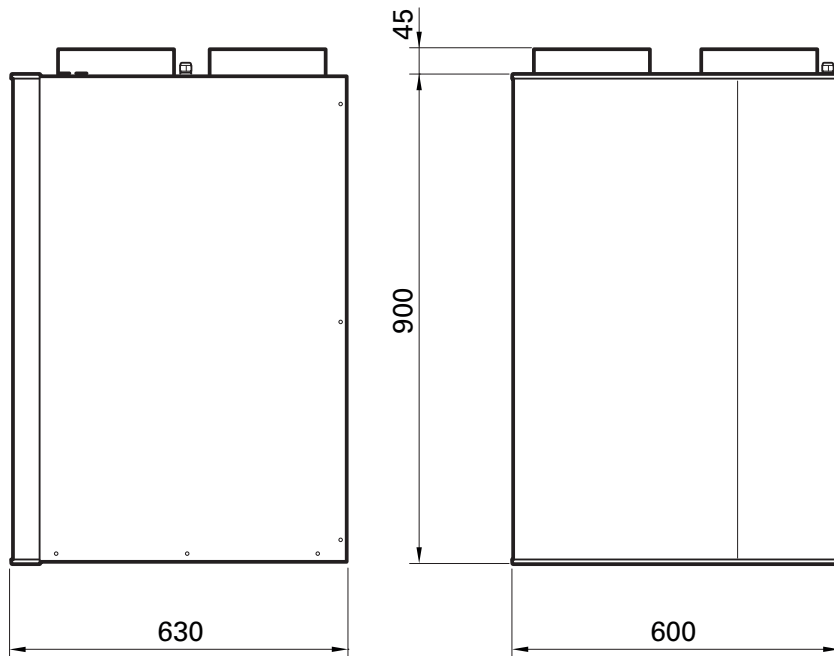
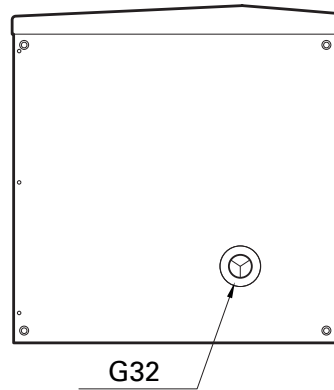
Height 385 - 635 mm

Part no. 089 758

Technical data

Dimensions

S



Technical specifications

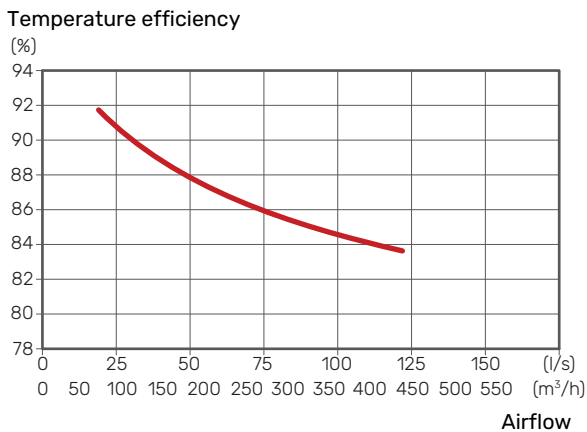
Type		ERS S10
Electrical data		
Supply voltage	V	230 V ~ 50Hz
Fuse	A	10
Driving power fan	W	2 x 90
Enclosure class		IP X1B
Ventilation		
Filter type, exhaust air filter		Coarse 65%
Filter type, supply air filter		ePM1 55%
Noise		
Sound power level ($L_{W(A)}$) ¹	dB(A)	54
Sound pressure level ($L_{P(A)}$) at 1 m ²	dB(A)	45
Pipe connections		
Ventilation \varnothing	mm	160
Condensation water drain		G32
Dimensions and weight		
Efficiency class ³		A
Length, supply cable	m	2.4
Length, communication cable	m	2.0
Width	mm	600
Height	mm	900
Depth	mm	630
Weight	kg	40
Part No.		066 163

¹ 92 l/s (331 m³/h) at 50 Pa

² 64 l/s (230 m³/h) at 50 Pa

³ Scale for efficiency class: A+ to G.

Dry temperature efficiency according to EN 308



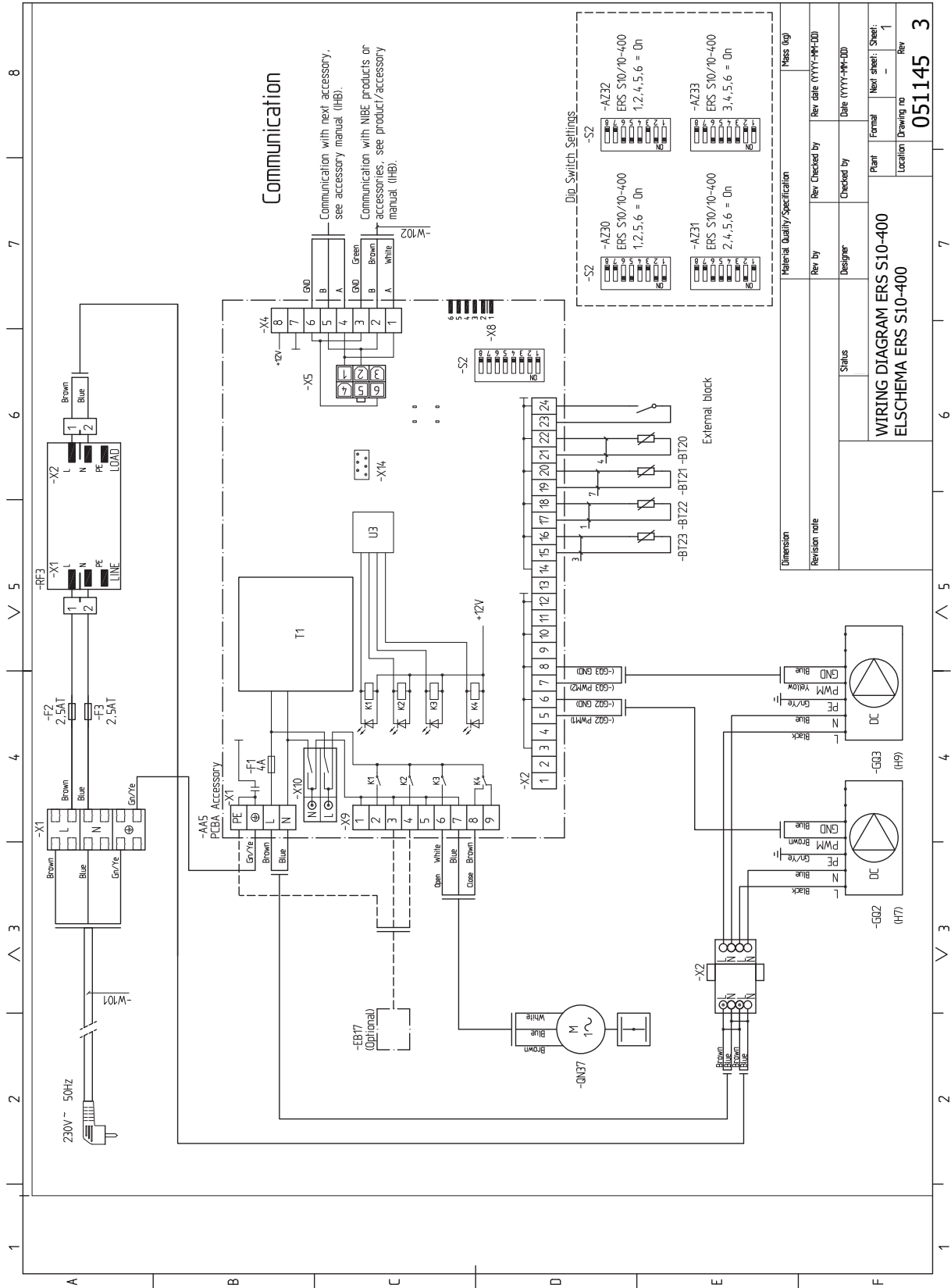
Outdoor air: 5 °C Exhaust air 25 °C RH exhaust air: <27.7 %

Energy labelling

Supplier		NIBE
Model		ERS S10-400
Specific energy consumption (SEC)	kWh/(m ² year)	Average: -37.7 Cold: -75.0 Warm: -13.8
Energy efficiency class		A
Declared typology		RVU, Bidirectional
Type of drive		Variable speed drive
Type of heat recovery system		Recuperative
Thermal efficiency of heat recovery		85
Maximum air flow rate	m ³ /h	476
Electric power input of the fan drive at maximum flow rate	W	171
Sound power level (LWA)	dB	54
Reference flow rate	m ³ /s	0.092
Reference pressure difference	Pa	50
Specific power input (SPI)	W/m ³ /h	0.22
Control factor and control typology		Clock control (0.95)
External leakage rates	%	Internal: 1.8 External: 0.8
Information about filter warning		See user manual.
Information about supply/exhaust grilles in the facade		See the "Ventilation connections" section.
Information about pre-/disassembly		See the "Recovery" section. This installer manual can also be accessed at nibe.eu .
The annual electricity consumption	kWh/year	297
Annual heating saved, kWh primary energy per year	kWh prim/year	Average: 4,447 Cold: 8,697 Warm: 2,010

S

Electrical circuit diagram



WIRING DIAGRAM ERS S10-400
ELSCHEMA ERS S10-400

Dimension	Material Quality/Specification	Mass (kg)
Revision note	Rev by	Rev date (YYYY-MM-DD)
Status	Designer	Checked by
Plant	Formal	Next sheet
Location	Drawing no	Sheet
		Rev

051145 3



F-series Table of Contents

11	Important information	25	18	Disturbances in comfort	38
	Safety information	25		Troubleshooting	38
	Symbols	25			
	Marking	25	19	Accessories	39
	Serial number	25			
	Recovery	25	20	Technical data	40
	Inspection of the installation	26		Dimensions	40
				Technical specifications	41
12	Delivery and handling	27		Energy labelling	42
	Transport and storage	27		Electrical circuit diagram	43
	Supplied components	27			
	Compatible products	27		Contact information	47
	Removing the covers	27			
	Removing parts of the insulation	27			
	Assembly	28			
	Mounting	28			
13	Design of the HRV unit	29			
	Pipe connections	30			
	Sensors etc.	30			
	Electrical components	30			
	Ventilation	30			
	Miscellaneous	30			
14	Ventilation connections	31			
	Condensation water drain	31			
	General ventilation connections	31			
	Ventilation flow	31			
	Adjusting ventilation	32			
	Ventilation connections	32			
15	Electrical connection	33			
	Overview accessory board (AA5)	33			
	Supply	33			
	Connecting to main product	34			
16	Commissioning and adjusting	36			
	Preparations	36			
	Filling	36			
	Start-up and inspection	36			
17	Activating ERS S10	37			
	Start guide	37			
	Menu system	37			

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.

This is an original manual. It may not be translated without the approval of NIBE. Rights to make any design or technical modifications are reserved.

©NIBE 2023.

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

Symbols

Explanation of symbols that may be present in this manual.



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

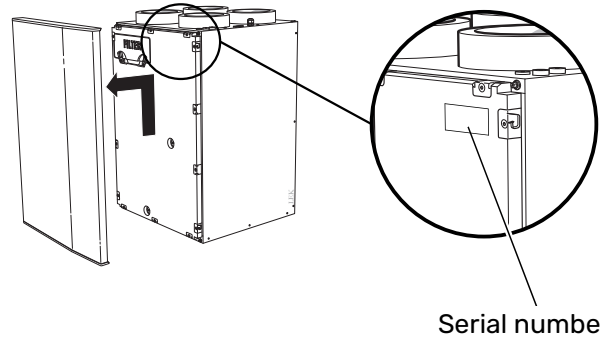
Explanation of symbols that may be present on the product's label(s).



Read the User Manual.

Serial number

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



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.

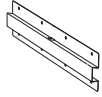
✓	Description	Notes	Signature	Date
	Electricity (page 33)			
	Connections			
	Main voltage			
	Fuses property			
	Earth circuit-breaker			

Delivery and handling

Transport and storage

ERS S10 should be transported and stored in the dry.

Supplied components



Rail for wall mounting

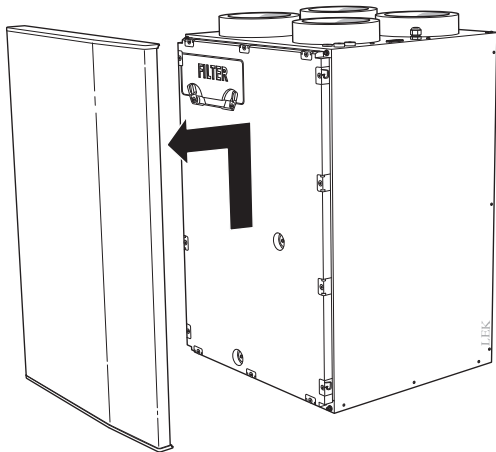
Compatible products

- F1145
- F1155
- F1245
- F1255
- F1345
- F1355
- VVM 310
- VVM 320
- VVM 325
- VVM 500
- SMO 40

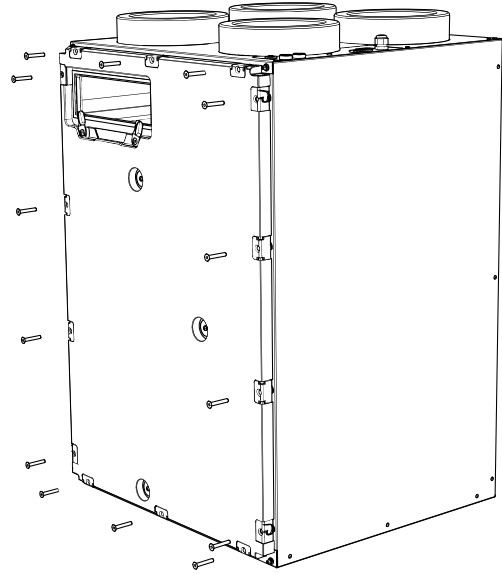
Removing the covers

FRONT COVER

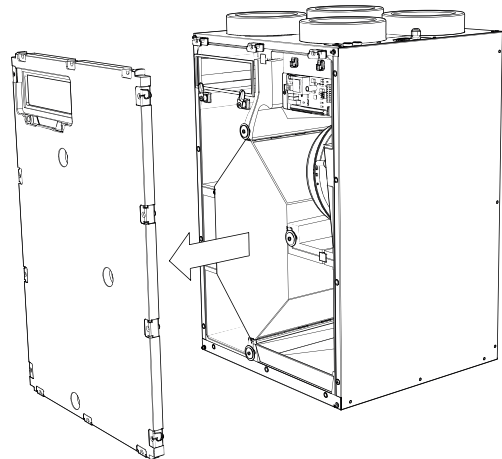
1. Lift the front cover upwards slightly.
2. Pull the hatch towards yourself.



2. Slacken off the screws that hold the insulation in place.



3. Pull the insulation straight out.

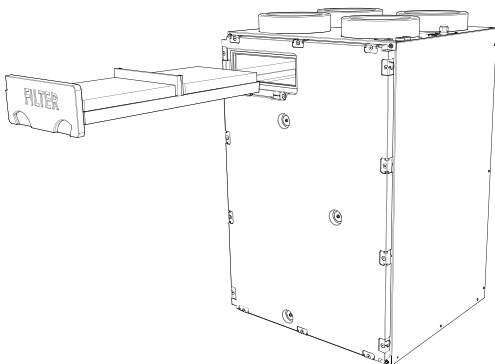


Removing parts of the insulation

FRONT INSULATION

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

1. Remove the air filter.



F

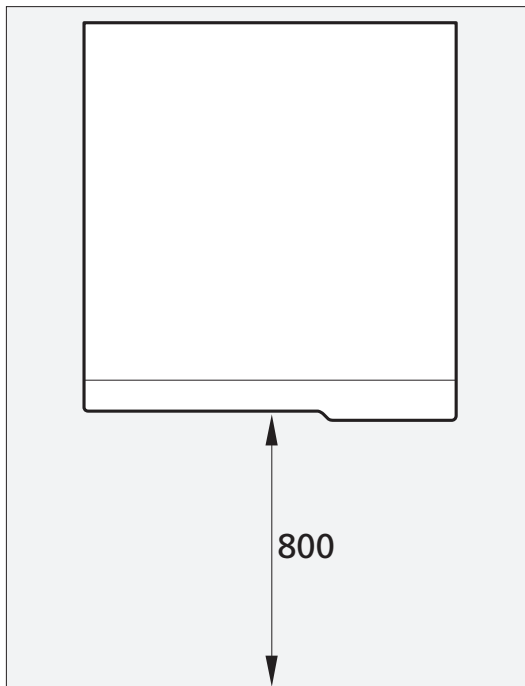
Assembly

ERS S10 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 water comes from the HRV unit. A condensation outlet with a water seal must be installed and routed to an internal drain.
- The HRV unit's installation area always has to 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.



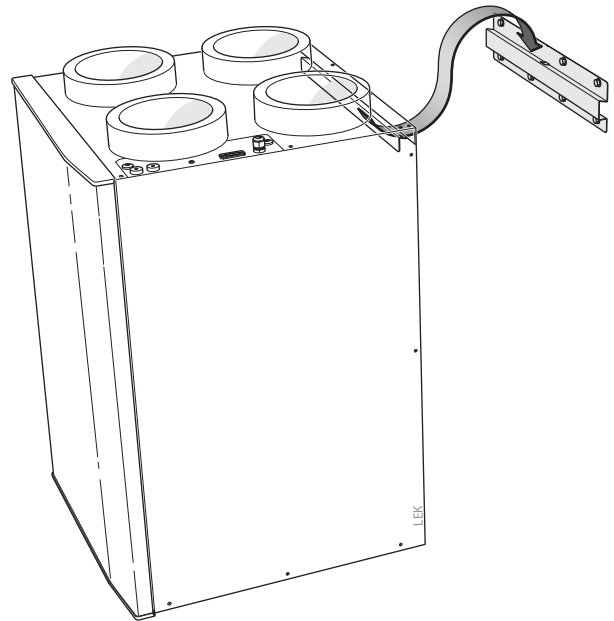
NOTE

Ensure that there is sufficient space (300 mm) for connecting ventilation ducts.

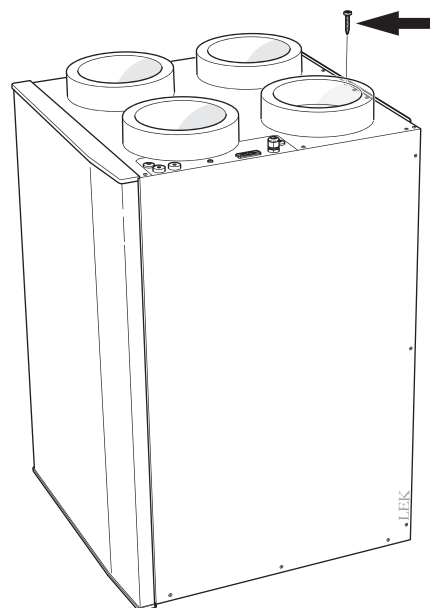
Mounting

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

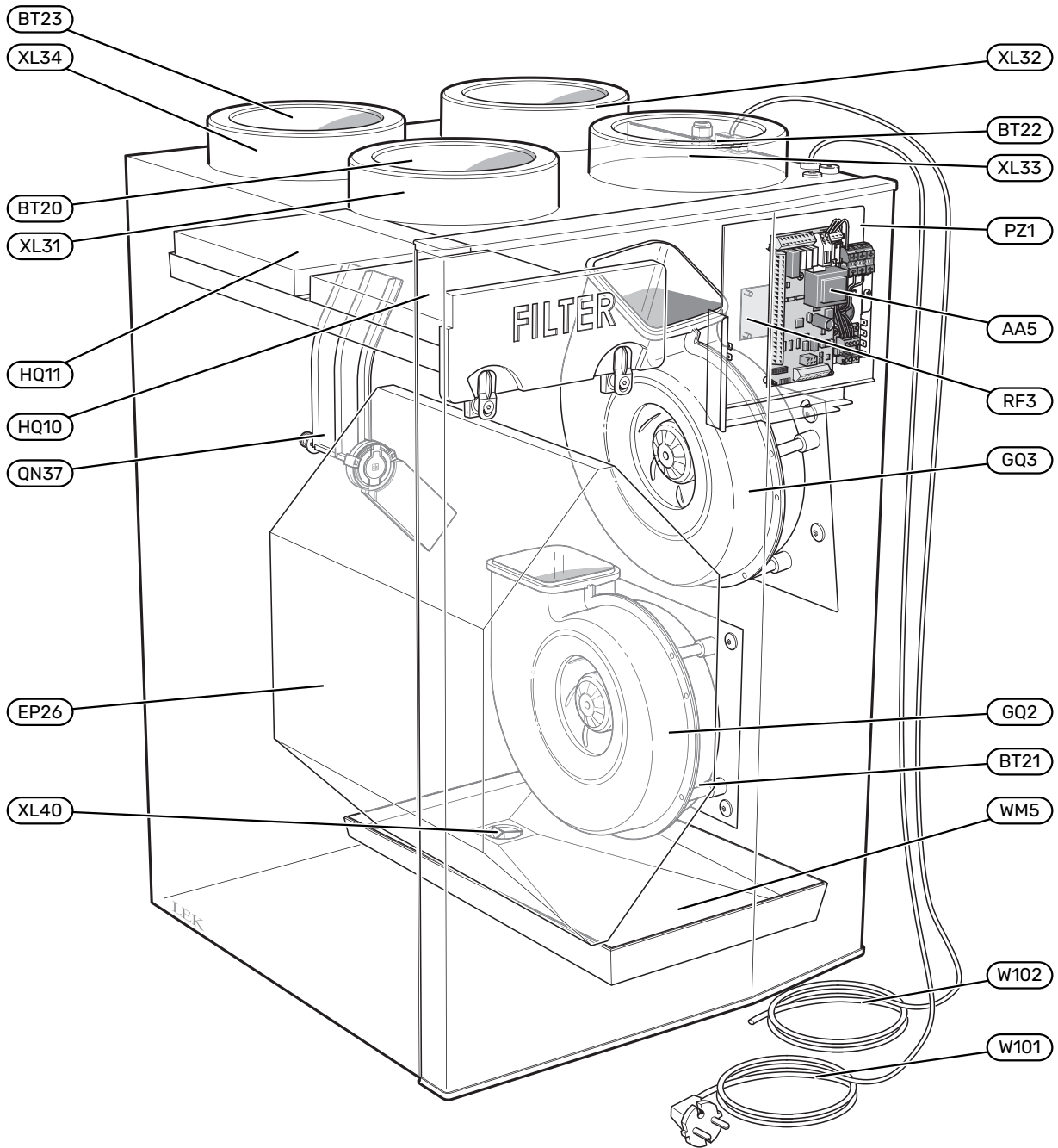
1. Install the enclosed bracket to the wall.
2. Install ERS S10 on the brackets.



3. Screw ERS S10 firmly into place on the bracket.



Design of the HRV unit



F

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
RF3	EMC card
W101	Cord with connection plug
W102	Communication cable

F

Ventilation

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

Miscellaneous

PZ1	Type plate
WM5	Condensation water trough

Designations according to standard EN 81346-2.

Ventilation connections

Condensation water drain

ERS S10 can produce several litres of condensation water per day. It is therefore important that the condensation outlet is correctly executed and the HRV unit 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 S10.

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

CLEANING THE CONDENSATION WATER DRAIN

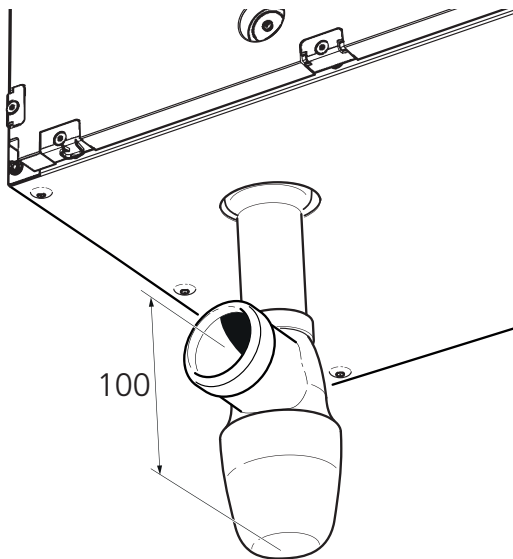
Condensation forms when ERS S10 is working. This condensation is led off and collected in the condensation water drain. Apart from water, a certain amount of dust and particles also collect there.

Check regularly that the condensation water drain and any floor drains are not blocked; water must be able to run through freely. Clean, if necessary.



NOTE

During operation, negative pressure arises in the HRV unit, 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.
- Provision must be made for inspection and cleaning of the duct.
- The air duct system must be a minimum of air tightness class B.
- To prevent fan noise being transferred to the ventilation devices, install silencers in suitable locations in the duct system.
- The extract air and outdoor air ducts are insulated using diffusion-proof material 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 S10 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 S10, 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 S10.

To prevent cooking odours from being led to the ERS S10, the distance between the kitchen fan and the exhaust air valve must be taken into consideration. The distance must not be less than 1.5 m, but may vary between different installations.

Always use a kitchen fan when cooking.

Ventilation flow

Connect ERS S10 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

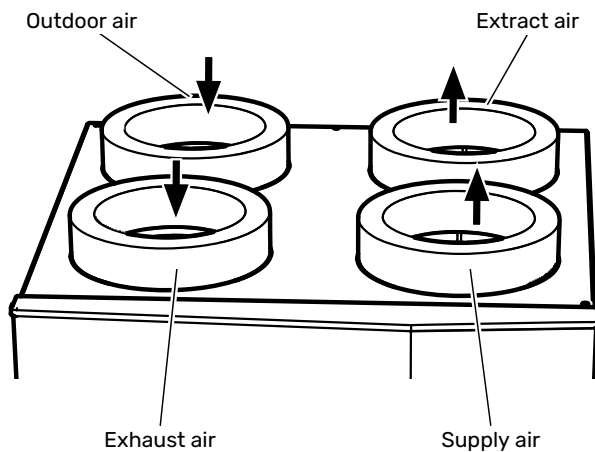
To obtain the necessary air exchange in every room of the building, the exhaust air valve and the supply air inlet as well as the fans in the HRV unit must be correctly positioned and adjusted.

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, a poorer indoor climate and moisture damage in the building.

F

Ventilation connections



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 national provisions.

ERS S10 must not be powered during installation.



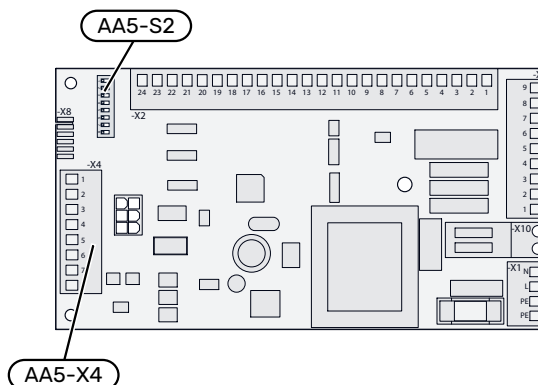
NOTE

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

- To prevent interference, sensor cables to external connections must not be laid close to high voltage cables.
- The minimum area of communication and sensor cables to external connections must be 0.5 mm² up to 50 m, for example EKKX, LiYY or equivalent.

For electrical wiring diagram, see page 43.

Overview accessory board (AA5)



Supply

ERS S10 is connected to a earthed single-phase wall socket or a permanent installation. For permanent installations, ERS S10 must be preceded by a circuit breaker with at least a 3 mm breaking gap.

F

Connecting to main product

CONNECTING TO THE HEAT PUMP

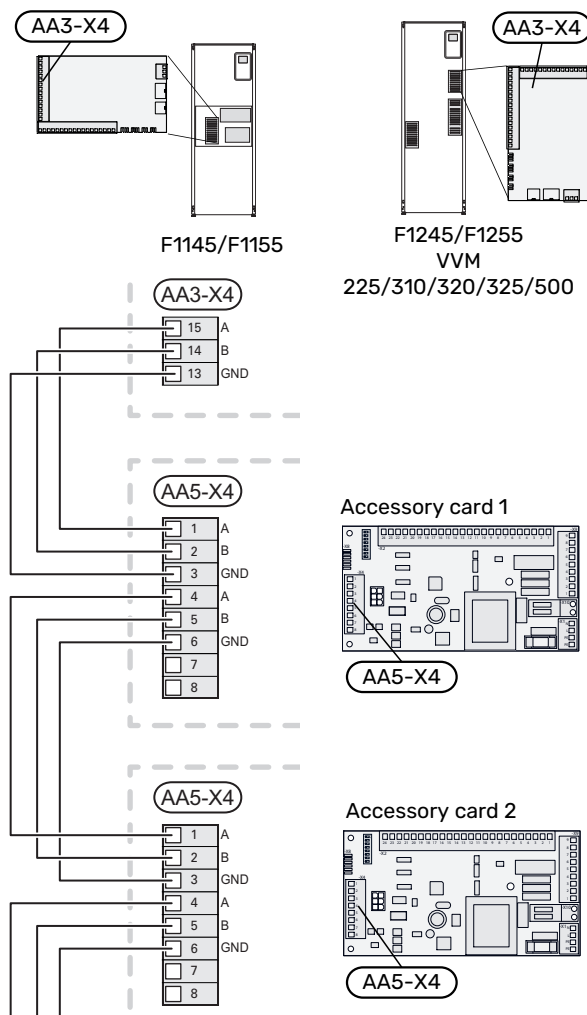
ERS S10 contains an accessory board (AA5) that connects directly to the main product's input board (terminal block AA3-X4).

The communication cable (W102) is connected to the accessory board (AA5) from the factory.

If several accessories are to be connected, or are already installed, the boards are connected in series.

Because there can be different connections for accessories with accessory board (AA5), you should always read the instructions in the manual for the accessory that is to be installed.

Main product



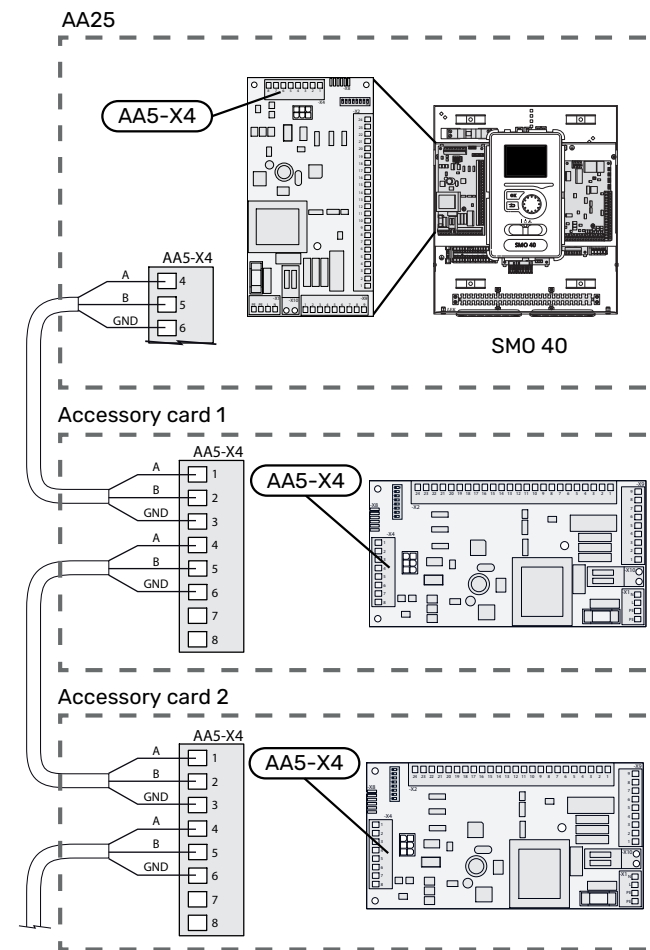
CONNECTING TO CONTROL MODULE

ERS S10 contains an accessory board (AA5) that connects directly to the control module on its accessory board (terminal block AA5-X4).

The communication cable (W102) is connected to the accessory board (AA5) from the factory.

If several accessories are to be connected, or are already installed, the boards are connected in series.

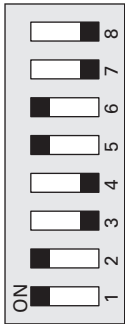
Because there can be different connections for accessories with accessory board (AA5), you should always read the instructions in the manual for the accessory that is to be installed.



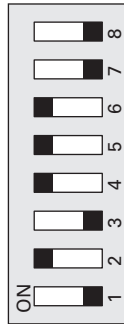
DIP SWITCH

The DIP switch (S2) on the accessory board (AA5) must be set as follows.

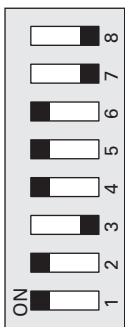
You can have up to 8 ERS S10 in the same installation, each ERS S10 is given a unique setting.



ERS S10 no. 1



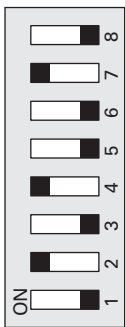
ERS S10 no. 2



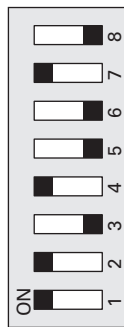
ERS S10 no. 3



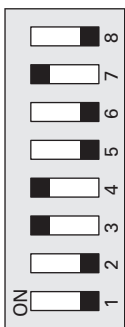
ERS S10 no. 4



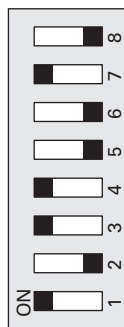
ERS S10 no. 5



ERS S10 no. 6



ERS S10 no. 7



ERS S10 no. 8

Commissioning and adjusting

Preparations

- Check the miniature circuit-breaker (FC1) in the main product. It may have tripped during transportation.
- Check that the air filters are clean, they can become dirty after installation.

Filling

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

Start-up and inspection

SETTING THE VENTILATION

The ventilation must be set according to applicable standards. Adjust the supply air flow to guarantee 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

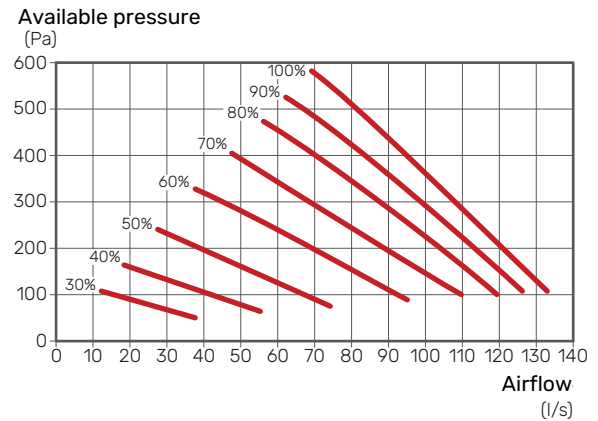
An incorrectly set ventilation flow can damage the house and may also increase energy consumption.



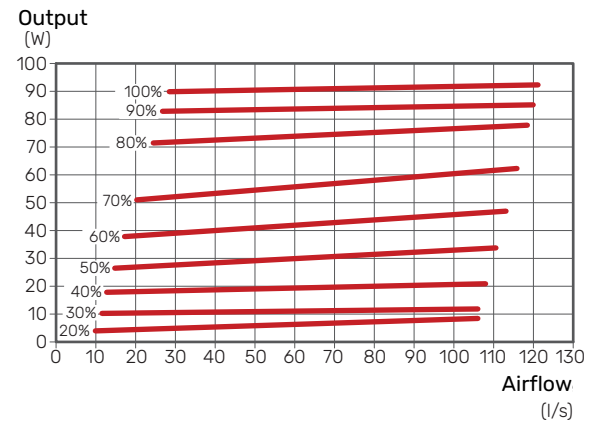
NOTE

Order a ventilation adjustment to complete the setting.

Ventilation capacity



Fan rating¹



¹The diagram shows the power consumption per fan.

Activating ERS S10

Activating ERS S10 can be performed via the start guide or directly in the menu system.



Caution

Also see the Installer Manual 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.

Select: "exhaust/supply air module".

MENY 5.3.12 - EXHAUST/SUPPLY AIR MODULE

months btwn filter alarms

Setting range: 1 – 24

Default value: 3

lowest extract air temp.

Setting range: 0 – 10 °C

Default value: 5 °C

bypass at excess temperature

Setting range: 2 – 10 °C

Default value: 4 °C

bypass during heating

Setting range: on/off

Factory setting: off

cut-out val. exh. air temp.

Setting range: 5 – 30 °C

Default value: 25 °C

product

Setting range: ERS S10, ERS 20/ERS 30

Factory setting: ERS 20 / ERS 30

action level monitor

Setting range: off, blocked, level monitor

Default value: level monitor

months btwn filter alarms: Set how often the filter alarm is to be displayed.

lowest extract air temp.: Set the minimum extract air temperature to prevent the build-up of ice on the heat exchanger. The supply air fan speed reduces, if the extract air temperature (BT21) is lower than the set value.

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

bypass during heating: Activate whether the bypass damper (QN37) will also be allowed to open during heat production.

cut-out val. exh. air temp.: If no room sensor is installed, you set the exhaust air temperature at which the bypass damper (QN37) will open here.

product: Here, you set which ERS model is installed.

action level monitor: If "level monitor" is selected, the product issues an alert and the fans stop when the input closes. If "blocked" is selected, text in operating info shows that the input is closed. The fans stop until the input is open.



TIP

When ERS S10 is activated, the other ventilation menus will also light up.

F

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.

Troubleshooting

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

BASIC ACTIONS

Start by checking the following items:

- That the main product is running and that the supply cable to ERS S10 is connected.
- Group and main fuses of the accommodation.
- The property's earth circuit breaker.
- The main product's fuses.
- The main product's temperature limiter.

LOW OR A LACK OF VENTILATION

- The exhaust air filter (HQ10) and/or the supply air filter (HQ11) is clogged.
 - Replace the filters.
- The ventilation is not adjusted.
 - Order/implement ventilation adjustment.
- Closed, too much choke or blocked ventilation device.
 - Check and clean the ventilation 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 20) if installed.

HIGH OR DISTRACTING VENTILATION

- The exhaust air filter (HQ10) and/or the supply air filter (HQ11) is clogged.
 - Replace the filters.
- 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.

Accessories

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

Not all accessories are available on all markets.

ELECTRICAL AIR HEATER EAH 20

In cold weather, EAH heats the incoming outdoor air slightly to prevent the condensation in ERS S10 from freezing to form ice. EAH should be used in houses where the outdoor temperature can be continuously lower than -5°C .

EAH 20-1800

(300-1800 W)

Part no. 067 603

TOP CABINET TOC 40

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

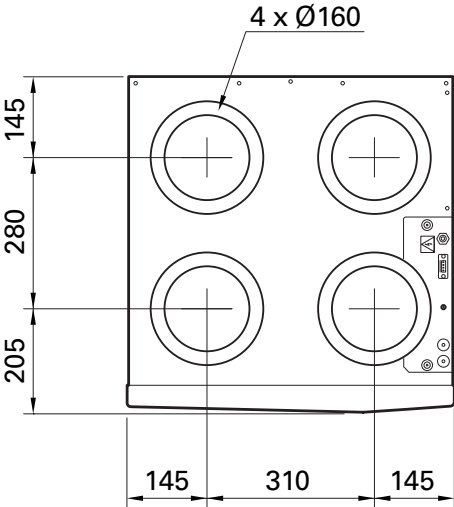
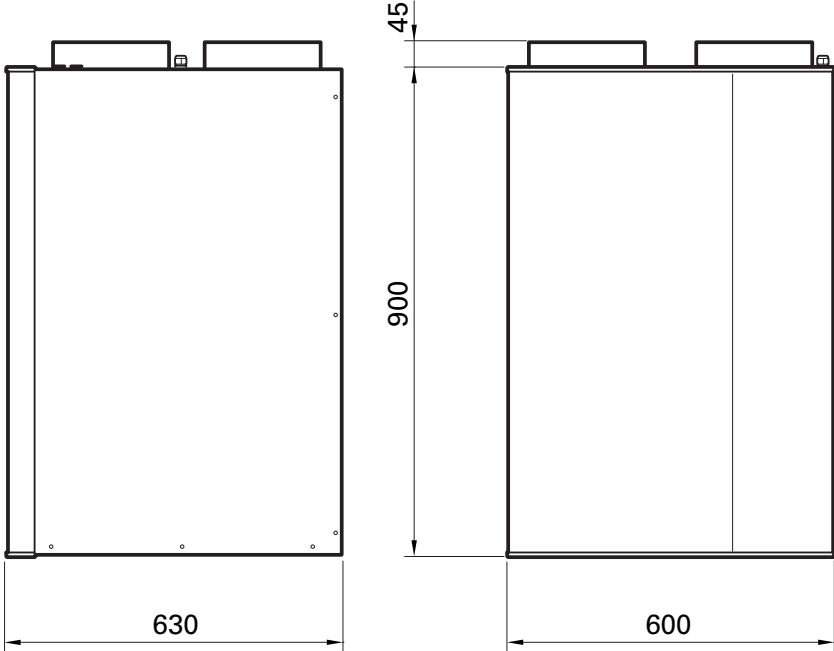
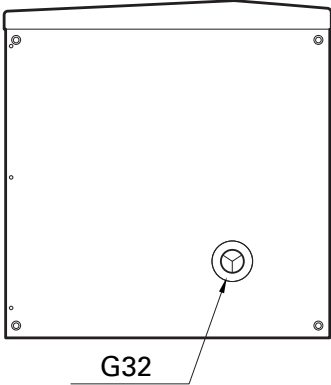
Part no. 089 758

F

Technical data

Dimensions

F



Technical specifications

Type		ERS S10
Electrical data		
Supply voltage	V	230 V ~ 50Hz
Fuse	A	10
Driving power fan	W	2 x 90
Enclosure class		IP X1B
Ventilation		
Filter type, exhaust air filter		Coarse 65%
Filter type, supply air filter		ePM1 55%
Noise		
Sound power level ($L_{W(A)}$) ¹	dB(A)	54
Sound pressure level ($L_{P(A)}$) at 1 m ²	dB(A)	45
Pipe connections		
Ventilation \varnothing	mm	160
Condensation water drain		G32
Dimensions and weight		
Efficiency class ³		A
Length, supply cable	m	2.4
Length, communication cable	m	2.0
Width	mm	600
Height	mm	900
Depth	mm	630
Weight	kg	40
Part No.		066 163

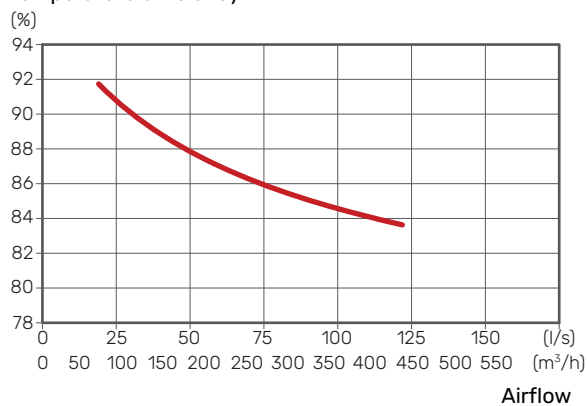
¹ 92 l/s (331 m³/h) at 50 Pa

² 64 l/s (230 m³/h) at 50 Pa

³ Scale for efficiency class: A+ to G.

Dry temperature efficiency according to EN 308

Temperature efficiency



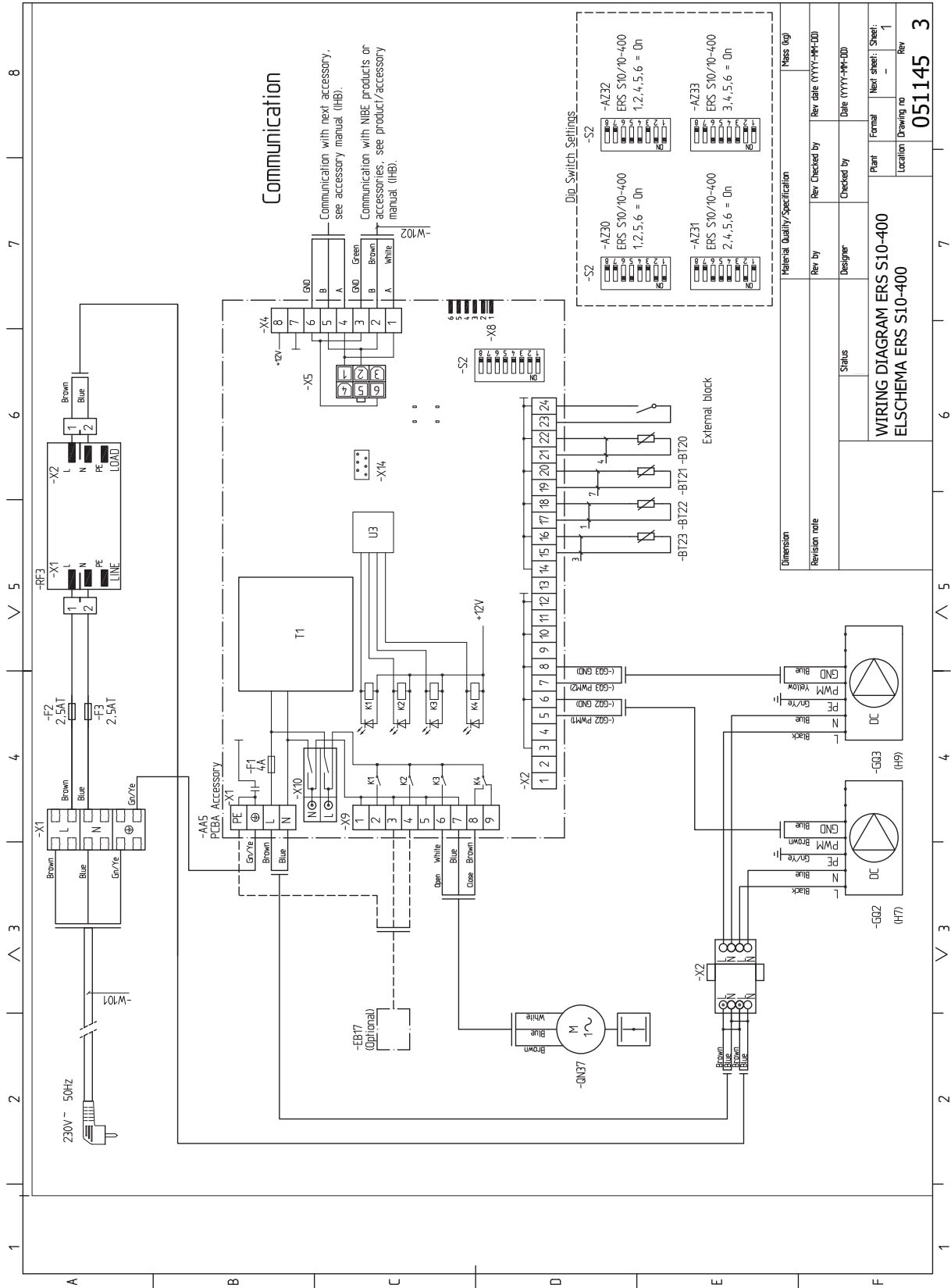
Outdoor air: 5 °C Exhaust air 25 °C RH exhaust air: <27.7 %

Energy labelling

Supplier		NIBE
Model		ERS S10-400
Specific energy consumption (SEC)	kWh/(m ² year)	Average: -37.7 Cold: -75.0 Warm: -13.8
Energy efficiency class		A
Declared typology		RVU, Bidirectional
Type of drive		Variable speed drive
Type of heat recovery system		Recuperative
Thermal efficiency of heat recovery		85
Maximum air flow rate	m ³ /h	476
Electric power input of the fan drive at maximum flow rate	W	171
Sound power level (LWA)	dB	54
Reference flow rate	m ³ /s	0.092
Reference pressure difference	Pa	50
Specific power input (SPI)	W/m ³ /h	0.22
Control factor and control typology		Clock control (0.95)
External leakage rates	%	Internal: 1.8 External: 0.8
Information about filter warning		See user manual.
Information about supply/exhaust grilles in the facade		See the "Ventilation connections" section.
Information about pre-/disassembly		See the "Recovery" section. This installer manual can also be accessed at nibe.eu .
The annual electricity consumption	kWh/year	297
Annual heating saved, kWh primary energy per year	kWh prim/year	Average: 4,447 Cold: 8,697 Warm: 2,010

F

Electrical circuit diagram



Item register

- A**
 - Accessories, 19, 39
 - Adjusting ventilation, 11, 32
 - Assembly, 7, 28
- C**
 - Commissioning and adjusting, 15, 36
 - Filling and venting, 15, 36
 - Preparations, 15, 36
 - Condensation outlet, 10, 31
 - Cleaning, 10, 31
- D**
 - Delivery and handling, 6, 27
 - Assembly, 7, 28
 - Installation, 7, 28
 - Installation area, 7, 28
 - Removing parts of the insulation, 6, 27
 - Removing the covers, 6, 27
 - Supplied components, 6, 27
 - Transport and storage, 6, 27
 - Design of the HRV unit, 8, 29
 - Dimensions and ventilation connections, 11, 32
 - Disturbances in comfort, 18, 38
 - Troubleshooting, 18, 38
- E**
 - Electrical connection, 12, 33
 - Connecting to main product, 13, 34
 - DIP switch, 14, 35
 - Energy labelling, 22, 42
 - Exhaust air duct, 10, 31
- F**
 - Filling and venting, 15, 36
- G**
 - General ventilation connections, 10, 31
- I**
 - Important information, 4, 25
 - Recycling, 4, 25
 - Inspection of the installation, 5, 26
 - Installation area, 7, 28
- M**
 - Marking, 4, 25
 - Menu system, 16, 37
 - Mounting, 7, 28
- P**
 - Pipe and ventilation connections
 - Exhaust air duct, 10, 31
 - Program settings, 16, 37
- R**
 - Recycling, 4, 25
 - Removing parts of the insulation, 6, 27
 - Removing the covers, 6, 27
- S**
 - Safety information
 - Inspection of the installation, 5, 26
 - Marking, 4, 25
 - Symbols, 4, 25
 - Serial number, 4, 25
 - Start guide, 16, 37
 - Start-up and inspection
 - Setting the ventilation, 15, 36
 - Supplied components, 6, 27
 - Symbols, 4, 25
- T**
 - The design of the exhaust air module
 - List of components, 9, 30
 - Transport and storage, 6, 27
 - Troubleshooting, 18, 38
- V**
 - Ventilation connections, 10, 31
 - Adjusting ventilation, 11, 32
 - Condensation outlet, 10, 31
 - Dimensions and ventilation connections, 11, 32
 - General ventilation connections, 10, 31
 - Ventilation flows, 10, 31
 - Ventilation flow, 10, 31

Contact information

AUSTRIA

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

FINLAND

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

GREAT BRITAIN

NIBE Energy Systems Ltd
3C Broom Business Park,
Bridge Way, S41 9QG Chesterfield
Tel: +44 (0)330 311 2201
info@nibe.co.uk
nibe.co.uk

POLAND

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

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

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

NETHERLANDS

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

SWEDEN

NIBE Energy Systems
Box 14
Hannabadsvägen 5, 285 21 Markaryd
Tel: +46 (0)433-27 30 00
info@nibe.se
nibe.se

DENMARK

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

GERMANY

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

NORWAY

ABK-Qviller AS
Brobekkeveien 80, 0582 Oslo
Tel: (+47) 23 17 05 20
post@abkqviller.no
nibe.no

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 for more information.

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

IHB EN 2306-1 731426

This is a publication from NIBE Energy Systems. All product illustrations, facts and data are based on the available information at the time of the publication's approval.

NIBE Energy Systems makes reservations for any factual or printing errors in this publication.

©2023 NIBE ENERGY SYSTEMS

