

FLÅKTEN

VillaMASTER RDAF HEAT RECOVERY UNIT

INSTALLATION, COMMISSIONING, OPERATION, MAINTENANCE AND SPARE PARTS



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1 Introduction

1.1 Document description

This document contains instructions for installation, commissioning, operation and maintenance.

Installation and commissioning must be done by approved personnel only. The persons who do the installation and commissioning must have sufficient training and experience in the relevant professions and knowledge about applicable safety regulations.

1.2 Product description

The product is a heat recovery unit with a rotary heat exchanger. The product is available in 3 different dimensions: RDAF Mini, RDAF Midi and RDAF Maxi.

The product is controlled by an ISYteq Touch 2.5 control panel (accessory).

NOTE

For full information about how to use the control panel, refer to the manual for ISYteq Touch 2.5.

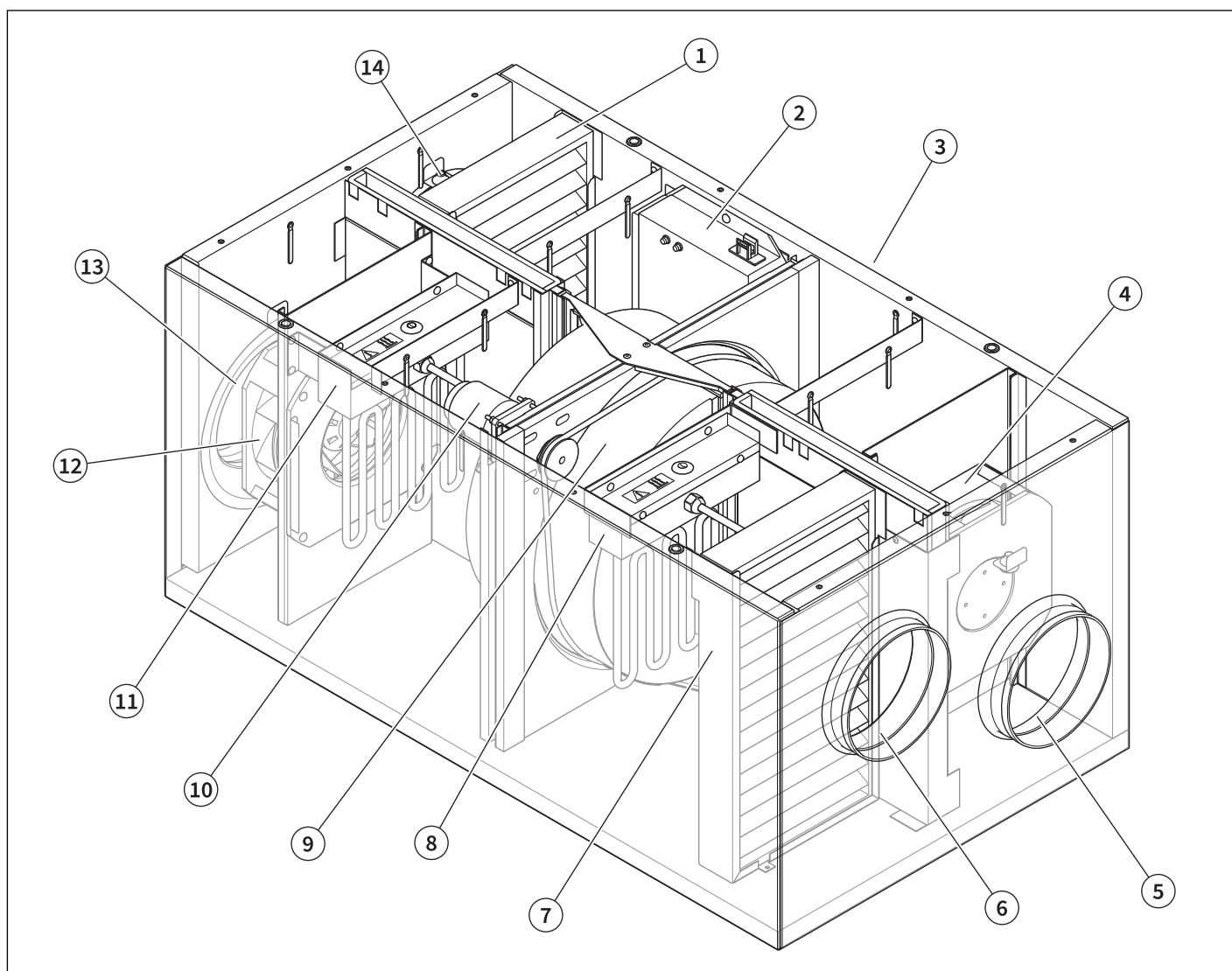
1.3 Intended use

The product is used for temperature control in detached houses and smaller premises. The different dimensions of the product are applicable for these maximum areas:

- RDAF Mini 200 m²
- RDAF Midi 270 m²
- RDAF Maxi 500 m²

The product is applicable for indoor installation in a cold space such as an attic.

1.4 Product overview



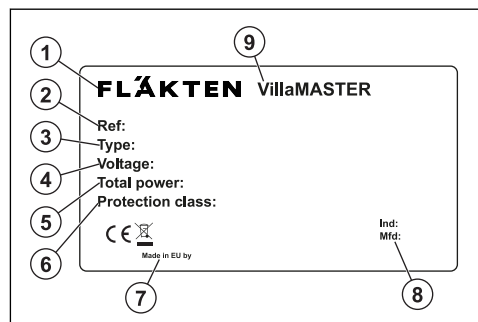
1. Extract air filter
2. Control unit
3. Casing
4. Exhaust air fan

5. Exhaust air
6. Outdoor air
7. Outdoor air filter
8. Preheater

9. Rotary heat exchanger
10. Rotor motor
11. Postheater

12. Supply air fan
13. Supply air
14. Extract air

1.5 Rating plate



1. Brand
2. Serial number
3. Type designation
4. Voltage, V, and frequency, Hz
5. Total power, W
6. IP code
7. Manufacturer address
8. Date of manufacture
9. Product name

1.6 Symbols on the product

Symbol Description



Warning: Risk of electrical shock.



Warning: This product is dangerous. Injury or death can occur if the product is not installed, operated or maintained correctly.



Hot surface.

1.7 Product liability

As referred to in the product liability laws, Fläkten is not liable for damages that the product causes in these conditions:

- The product is incorrectly installed, operated or maintained.
- The product is incorrectly repaired.
- The product is repaired with parts that are not from the manufacturer or not approved by the manufacturer.
- The product has an accessory that is not from the manufacturer or not approved by the manufacturer.
- The product is not repaired by approved service personnel.

Fläkten is not liable for direct, indirect, special, incidental or consequential damage caused by the use or the inability to use the instructions supplied for the product. Fläkten

reserves the right to make changes to the instructions without prior notice and is not obliged to inform previous or current owners about revisions or changes.

2 Safety

2.1 Safety definitions

Warnings, cautions and notes point out especially important parts of the instructions.



WARNING

Used if there is a risk of injury or death for the operator or bystanders if the instructions are not obeyed.



CAUTION

Used if there is a risk of damage to the product, other materials or the adjacent area if the instructions are not obeyed.

NOTE

Used to give more information that is necessary in a given situation.

2.2 General safety instructions



WARNING

Read the safety instructions that follow before you operate the product.

- Read this manual carefully and make sure that you understand the instructions before you do work on the product.
- The product 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 on safe use of the product and understand the risks.
- Do not let children play with the product. Do not let children clean or do maintenance on the product without supervision.
- Keep this manual at the location of the product.
- Make sure that you know how to stop the product quickly in an emergency.
- Only let approved personnel do the installation and commissioning of this product.
- Do not install or operate the product if it is defective.
- Do not make modifications to the product, accessories or other components.
- Always use original spare parts.

2.3 Safety instructions for maintenance



WARNING

Read the safety instructions that follow before you do maintenance on the product.

- Disconnect the power supply.
- Use personal protective equipment.
- Make sure that no cables become bent, caught or damaged.
- If the maintenance is not done correctly and regularly, the risk of damage to the product increases.

- Only do the maintenance given in the instructions. Let approved personnel do all other maintenance and servicing.
- If the power cord is damaged, it must be replaced by the manufacturer, an authorised service agent or equally qualified personnel in order to avoid hazard.

2.4 Personal protective equipment

- Use approved protective gloves during transportation, installation and maintenance.
- Use respiratory protection of class FFP2 or higher when you replace the filters.

3 Transportation and storage

3.1 To move the product manually

- Use protective gloves.
- For RDAF Mini and RDAF Midi: Make sure that a minimum of 2 persons lift the product.
- For RDAF Maxi: Make sure that a minimum of 4 persons lift the product.

3.2 To keep the product in storage before installation

- Keep the product in its original packaging.
- Keep the product in a location with a roof that gives protection.

4 Installation

4.1 Introduction to installation



WARNING

Read the safety chapter before you install the product.



CAUTION

Obey the installation instructions. Only let approved personnel do the installation. There is a risk of damage to the product and the building if the installation is not done correctly.

4.2 Insulation types and moisture barriers for different duct types

NOTE

The values in the table are recommended for installation in central Sweden. It is the responsibility of the approved personnel to adjust the values for the installation location if it is necessary.

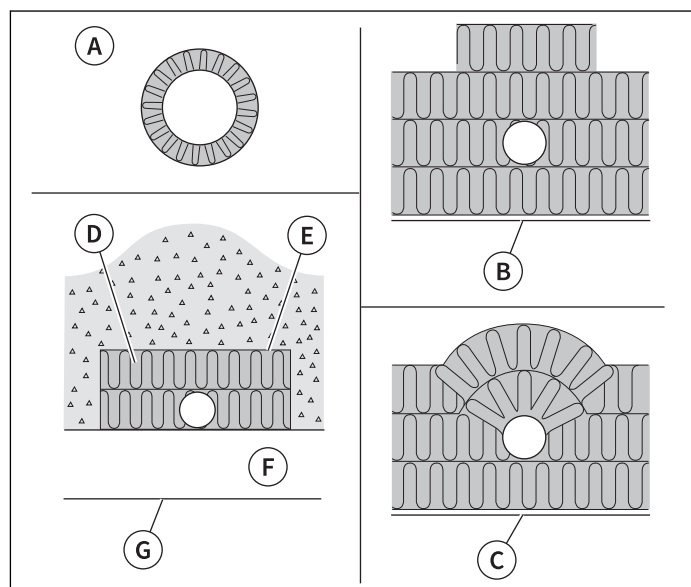


CAUTION

Make sure that ducts that are installed side by side have the same moisture barrier.

Duct type	Insulation for ducts in warm spaces	Moisture barrier	Insulation for ducts in cold spaces	Moisture barrier
Exhaust air with flue, in a kitchen	Armaflex AF3, 19 mm	Yes	–	–
Exhaust air with flue, between joists and in attics	Fire protection E15, mesh mat 30 mm	Yes	Fire protection E15, mesh mat 50 mm	Only in the moisture barrier of the building
Exhaust air without flue	Mineral wool, 25 mm	Yes	–	–
Exhaust air without flue, between joists and in attics	Mineral wool, 30 mm	Yes	Mineral wool, 30 mm	Yes
Exhaust air without flue, from a tumble dryer	Mineral wool, 30 mm	Yes	Mineral wool, 100 mm	No
Outdoor air, in a kitchen	Armaflex AF3, 19 mm	Yes	–	–
Outdoor air, between joists and in attics	Mineral wool, 60 mm	Yes	In the moisture barrier of the building: mineral wool, 60 mm	Only in the moisture barrier of the building
Supply air	No requirements	–	Mineral wool, a minimum of 80 mm or equivalent. The surface must be windproof.	No
Extract air				

4.3 Insulation method for ducts in different locations



In warm spaces (A), insulation of the supply air duct and the extract air duct is only necessary if the air temperature in the duct is lower than +10°.

In cold spaces, the insulation method is different for different types of ducts:

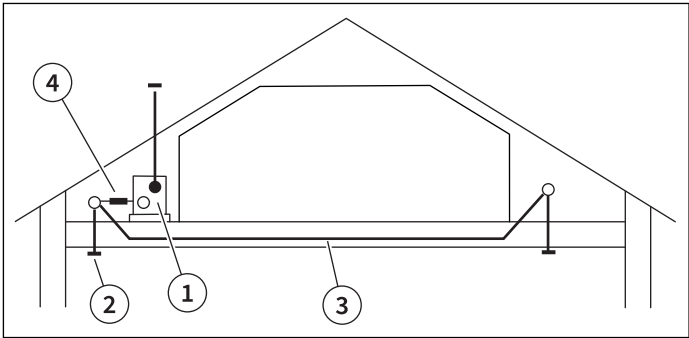
- Supply air duct and extract air duct with moisture barrier (B)
- Outdoor air duct and exhaust air duct with moisture barrier (C)

In loose mineral wool, this is the insulation method:

- Insulation sheet, minimum thickness 10 cm, attached to the duct (D)
- Moisture barrier (E)
- Roof truss (F)
- Moisture barrier (G)

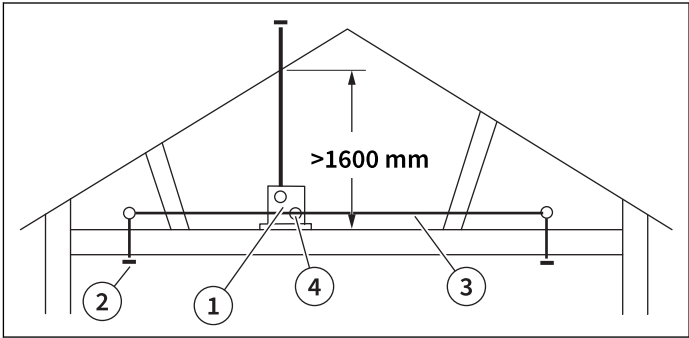
Refer to [4.2 Insulation types and moisture barriers for different duct types, page 7](#) for correct insulation type.

4.4 Installation position in buildings with 1 ½ storeys



- 1. VillaMASTER RDAF
- 2. Supply air device
- 3. Supply air duct
- 4. Duct silencer

4.5 Installation position in buildings with a dry, unfurnished attic



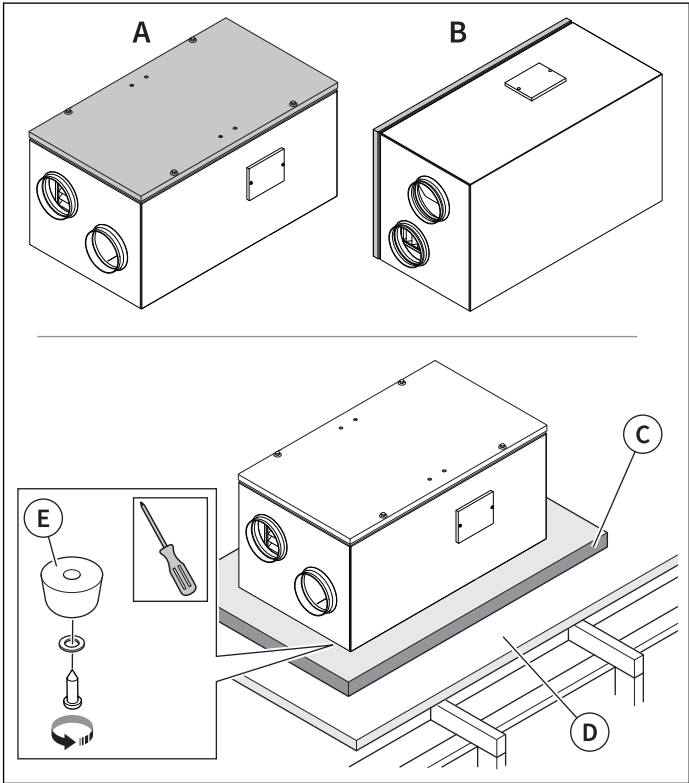
- 1. VillaMASTER RDAF
- 2. Supply air device
- 3. Supply air duct
- 4. Duct silencer

4.6 To install the product

If there is no ventilation drawing available, obey these instructions.

- 1. Select an applicable installation position for the building. Refer to [4.4 Installation position in buildings with 1 ½ storeys, page 8](#) or [4.5 Installation position in buildings with a dry, unfurnished attic, page 8](#).
- 2. Obey the installation clearances. Refer to [4.7 Installation clearances, page 8](#).

- 3. Make sure that the surface for the installation is stable.
- 4. Put the product with the door up (A) or to the side (B).



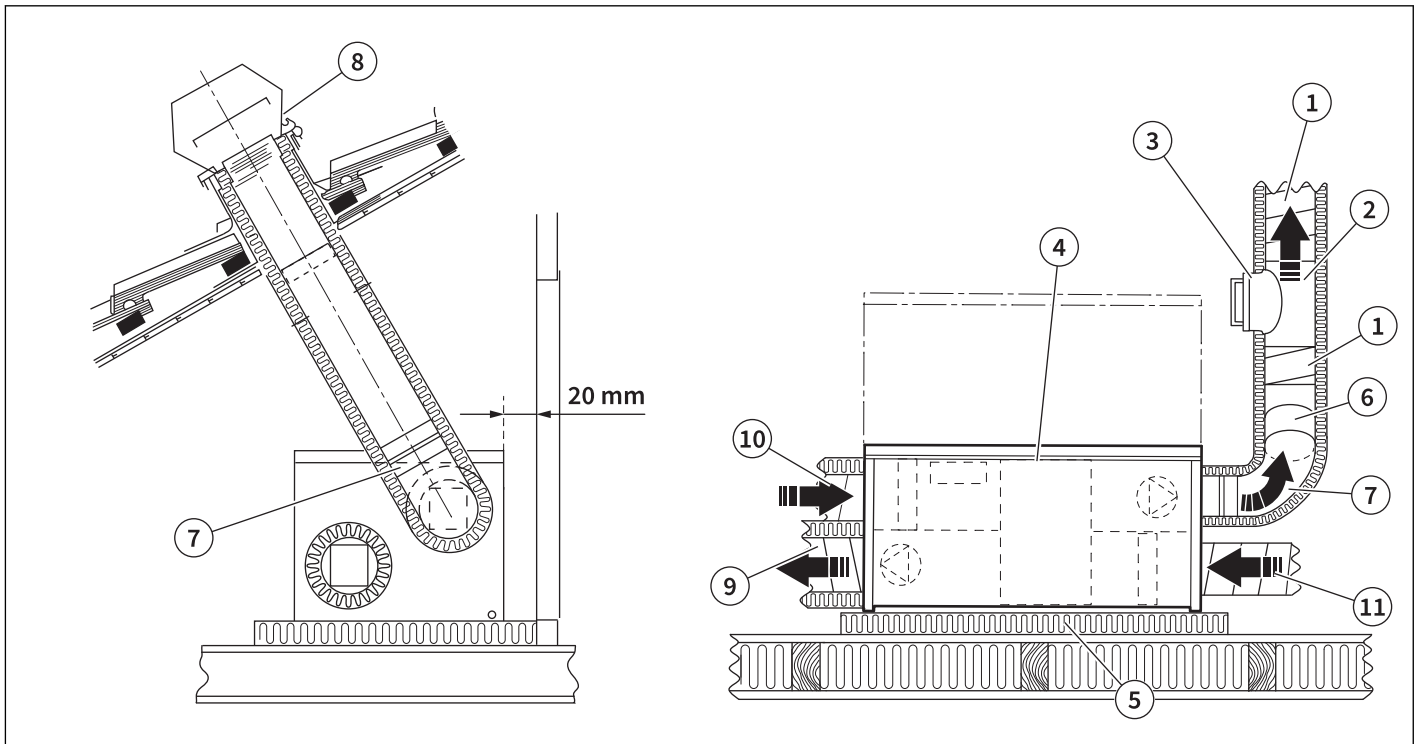
- 5. Put a 50 mm thick sheet of mineral wool (C) between the stable surface (D) and the product.
- 6. Install the feet (E).

4.7 Installation clearances

- The minimum distance from flammable structural components is 20 mm.
- The table shows the minimum distances in front of the product door, for inspection and maintenance.

Product variant	Necessary space, mm
RDAF Mini	640
RDAF Midi	680
RDAF Maxi	850

4.8 Duct installation, overview



- | | |
|--------------------------------------|---|
| 1. Exhaust air duct | 7. Duct bend |
| 2. T-piece duct connector | 8. Roof lead-through with extract air ventilation |
| 3. Sealing cap | 9. Supply air duct |
| 4. VillaMASTER RDAF | 10. Extract air duct |
| 5. 50 mm thick sheet of mineral wool | 11. Outdoor air duct |
| 6. Duct sleeve | |

4.9 To install the ducts

- Use sheet metal ducts of the correct dimensions:
 - a) RDAF Mini: Ø160 mm
 - b) RDAF Midi: Ø200 mm
 - c) RDAF Maxi: Ø250 mm
- Select correct insulation material and method for each duct type. Refer to [4.2 Insulation types and moisture barriers for different duct types, page 7](#) and [4.3 Insulation method for ducts in different locations, page 7](#).
- If a product is replaced, examine the ducts and insulation for damage. Replace if it is necessary.
- Connect the exhaust air connection of the product to a ventilation duct specially made for exhaust air.
- Do not connect the exhaust air connection to a smoke flue or gas flue.
- For extract air ventilation in a location where a smoke flue or gas flue is used, make sure that the supply airflow is sufficient.
- In a kitchen, make sure that you can get access to the ducts for inspection.
- Make sure that kitchen flue connections comply with applicable regulations.

5 Electrical connection

5.1 Introduction to electrical connection



WARNING

- Only let approved personnel do the electrical connections.
- Make sure that the electrical connections are done as shown in the supplied wiring diagram.

5.2 To connect the power supply

- Connect the power plug to a grounded mains socket.

6 Commissioning

6.1 Introduction to commissioning



WARNING

Read the safety chapter before you do commissioning on the product.



CAUTION

Obey the commissioning instructions. Only let approved personnel do the commissioning. There is a risk of damage to the product and the building if the commissioning is not done correctly.

6.2 To do before the commissioning

1. Make sure that the ducts are connected correctly.
2. Make sure that the door of the product is closed.
3. Make sure that the product is connected to a grounded mains socket.
4. Make sure that the touch screen shows the start screen.

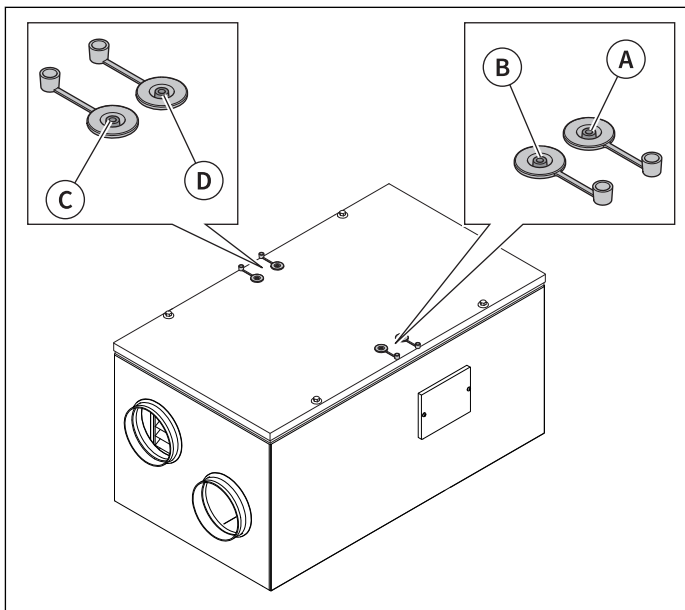
6.3 To measure and adjust the airflow



CAUTION

Airflow deviations of maximum 25% can occur with this measurement method. The values are only an indication. Always do a control measurement in the supply air and extract air devices.

The product has 4 airflow measurement points:



- Supply air (A)
 - Outdoor air (B)
 - Extract air (C)
 - Exhaust air (D)
1. Measure the pressure at the supply air measurement point (A).
 2. Measure the pressure at the outdoor air measurement point (B).

3. Subtract the value for the outdoor air pressure from the value for the supply air pressure. This pressure difference is the total supply air airflow in Pa.
4. Calculate the airflow q in l/s with this formula: $q = 1.3 \times \Delta p_m$
 - a) Δp_m is the pressure difference that you calculated in the step before.
5. Adjust the speed of the supply air fan to adjust the airflow if it is necessary.
6. Measure the pressure at the extract air measurement point (C).
7. Measure the pressure at the exhaust air measurement point (D).
8. Subtract the value for the extract air pressure from the value for the exhaust air pressure. This pressure difference is the total extract air airflow in Pa.
9. Calculate the airflow q in l/s with this formula: $q = 1.3 \times \Delta p_m$
 - a) Δp_m is the pressure difference that you calculated in the previous step.
10. Adjust the speed of the extract air fan to adjust the airflow if it is necessary.

6.4 To keep air leakage at the seals to a minimum

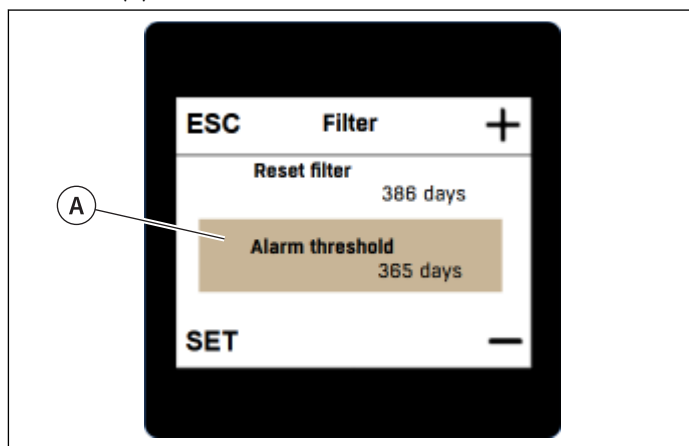
In a rotary heat exchanger it is not possible to fully prevent leakage between supply air and extract air.

- Keep the pressure difference between supply air and extract air as small as possible.
- Do a check of the pressure balance:
 - a) Make sure that the pressure at the supply air measurement point is higher than the pressure at the extract air measurement point.
 - b) Make sure that the pressure at the outdoor air measurement point is higher than the pressure at the exhaust air measurement point.

6.5 To set the interval for the filter alarm

In dusty environments it can be necessary to replace the filters at shorter intervals.

1. Select (A) to set the interval for the filter alarm.



2. Adjust the number of days with the + and -.
 - a) Select **SET** to confirm the selection.
 - b) Select **ESC** to cancel the adjustment.

7 Operation

7.1 To start, operate and stop the product

Operation of the product is done with the ISYteq Touch 2.5 controller.

- Refer to the operation manual of the ISYteq Touch 2.5 controller for instructions. The operation manual is available at [en e/](#).

7.2 Alarms

If you cannot find the solution to an alarm, speak to Fläktensupport.

7.2.1 To read and acknowledge alarms

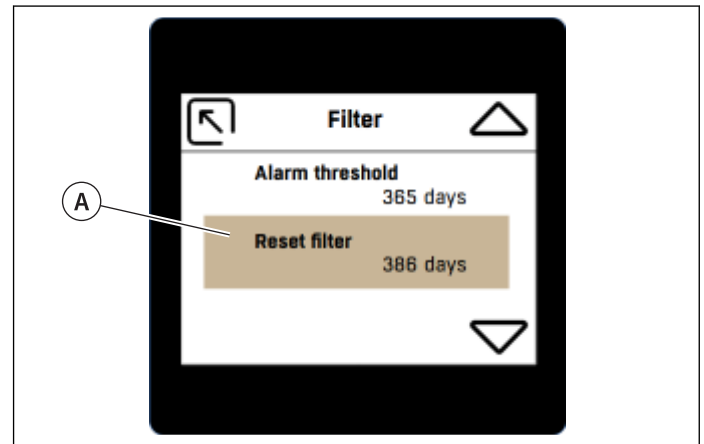
A symbol and an error code shows on the ISYteq Touch 2.5 control panel if there is an alarm.

- Refer to the manual for ISYteq Touch 2.5 for information about how to read and acknowledge alarms.

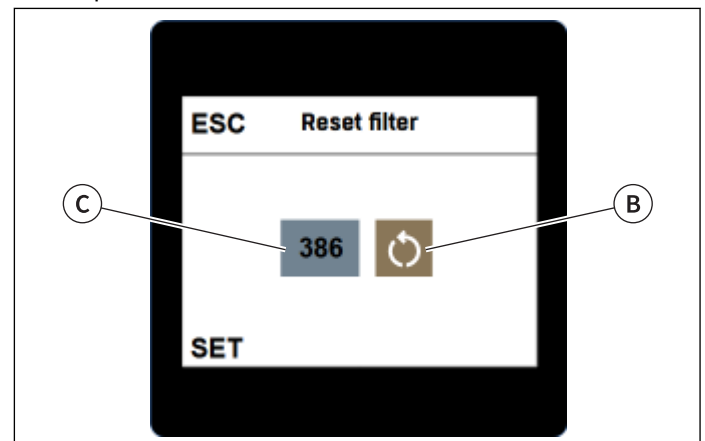
7.2.2 To reset a filter alarm before the set interval

In dusty environments it can be necessary to replace the filters at shorter intervals. The interval for filter alarm is set by approved personnel during commissioning. If you replace the filter before the set number of days, do this procedure to reset the filter alarm.

1. Select (A).



2. Select (B) to reset the number of days (C) since the last filter replacement to 0.



- a) Select **SET** to confirm the reset.
- b) Select **ESC** to cancel the reset.

7.3 To stop the product in an emergency

- Pull the power plug from the mains socket.

8 Maintenance

8.1 Introduction to maintenance



WARNING

Read the safety chapter before you do maintenance on the product.



CAUTION

Obey the maintenance instructions. Only let approved personnel do the maintenance. There is a risk of damage to the product and the building if the maintenance is not done correctly.

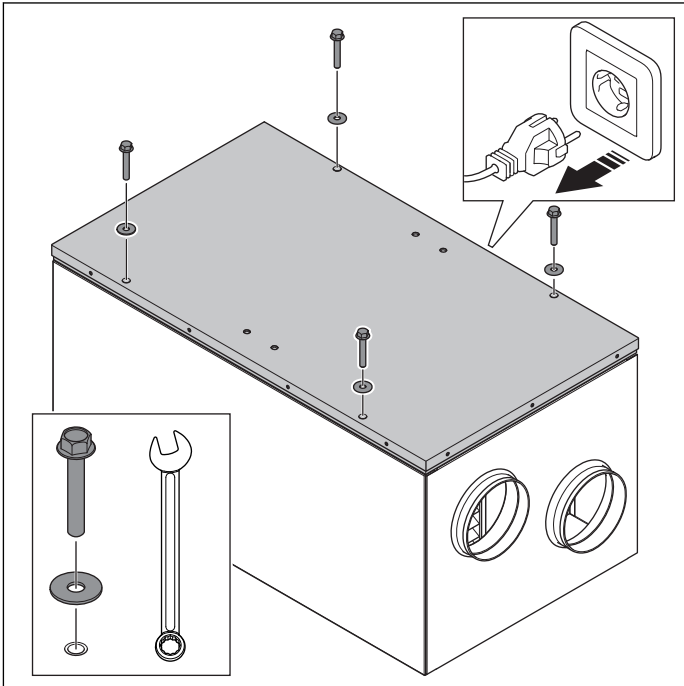
8.2 Maintenance schedule

The maintenance interval is 6 months.

- Clean the rotary heat exchanger. Refer to [8.2.1 To do maintenance on the rotary heat exchanger, page 14](#).
- Clean the fans. Refer to [8.2.2 To clean the fans, page 15](#).
- Replace the filters. An alarm shows when it is necessary to replace the filters. Refer to [7.2.1 To read and acknowledge alarms, page 13](#) and [8.2.3 To replace the filters, page 15](#).

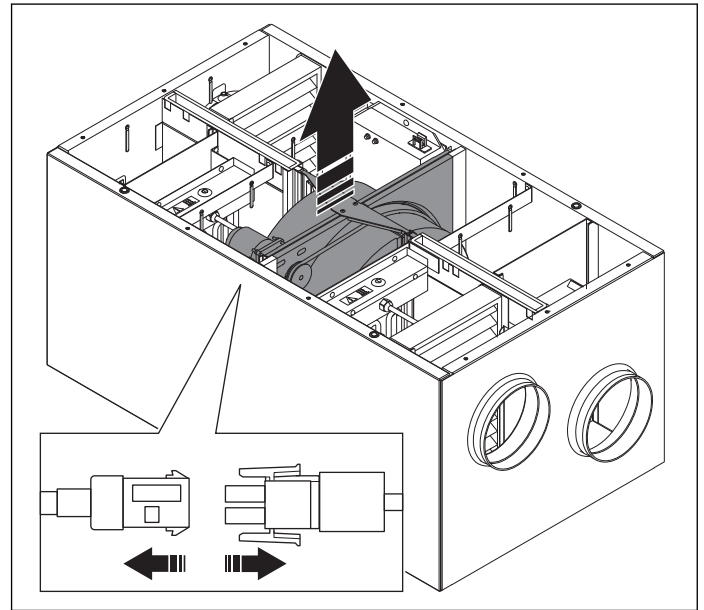
8.2.1 To do maintenance on the rotary heat exchanger

1. Disconnect the power plug.

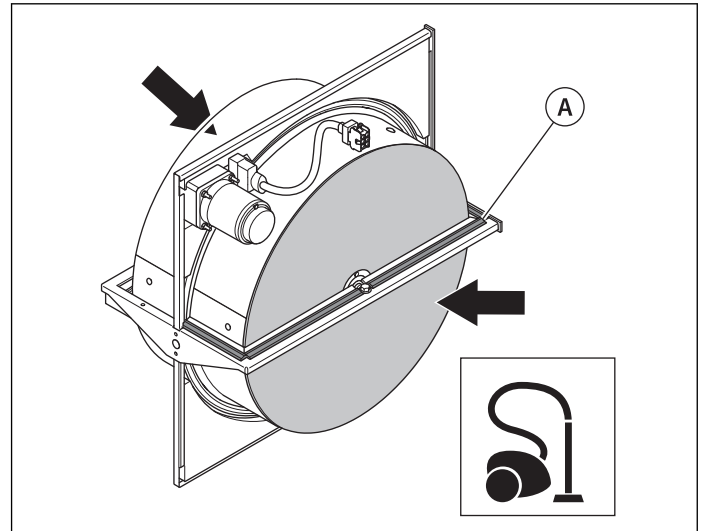


2. Remove the screws and open the door.

3. Remove the rotary heat exchanger carefully with the aid of 1 more person.



4. Disconnect the electrical connection to the rotor motor.
5. Clean the outer surfaces of the rotary heat exchanger with a vacuum cleaner.



6. If the rotary heat exchanger does not become clean, do these steps:
 - a) Spray with grease solvent.
 - b) Blow clean with compressed air from the clean side.



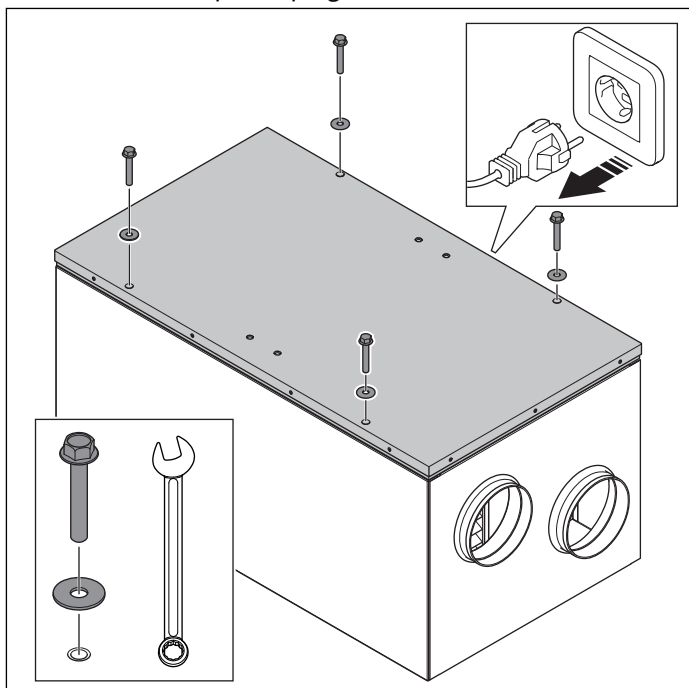
CAUTION

Do not use water, acetone or other equivalent solvents.

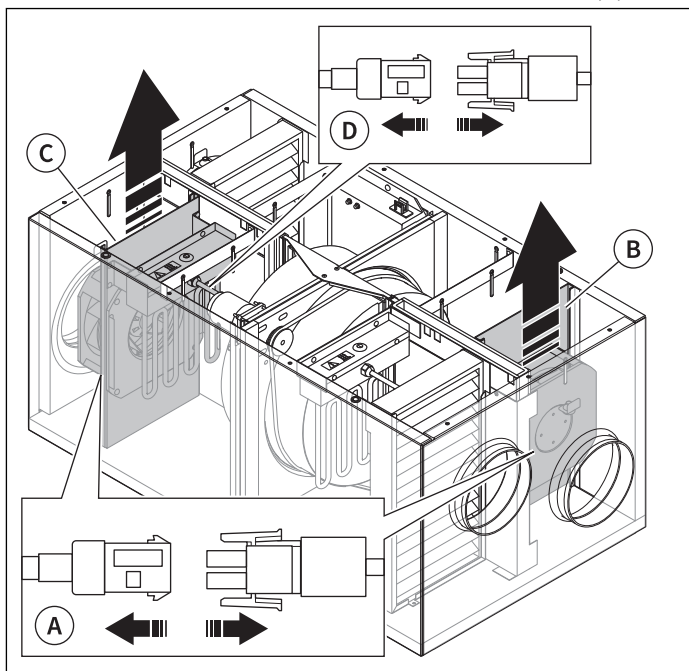
7. Do a check of the seals (A). Replace worn or damaged seals.
8. Do a check of the drive belt. Replace if it is worn or damaged.
9. Install the rotary heat exchanger in the opposite sequence. Make sure that the seals are in the correct position.

8.2.2 To clean the fans

1. Disconnect the power plug.

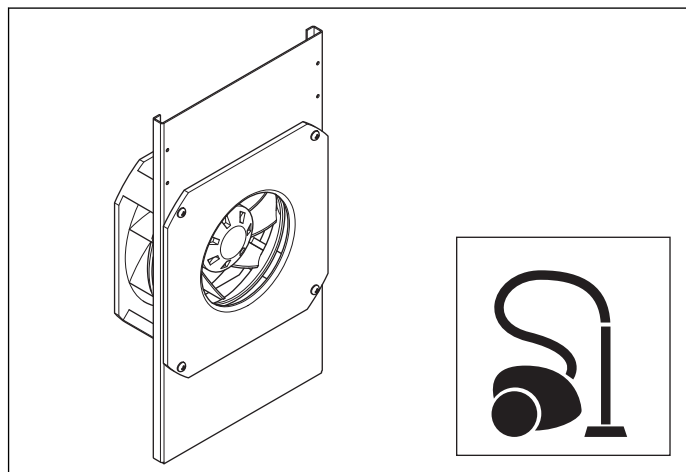


2. Remove the screws and open the door.
3. Disconnect the electrical connections for the fans (A).



4. Remove the fan assembly (B) and fan assembly (C).
5. If it is necessary, disconnect the electrical connection to the post heater (D).

6. Clean the fan housing and the fan blades with a brush or a vacuum cleaner.



CAUTION

Do not clean with water or other fluids.

7. Install the fans in the opposite sequence.

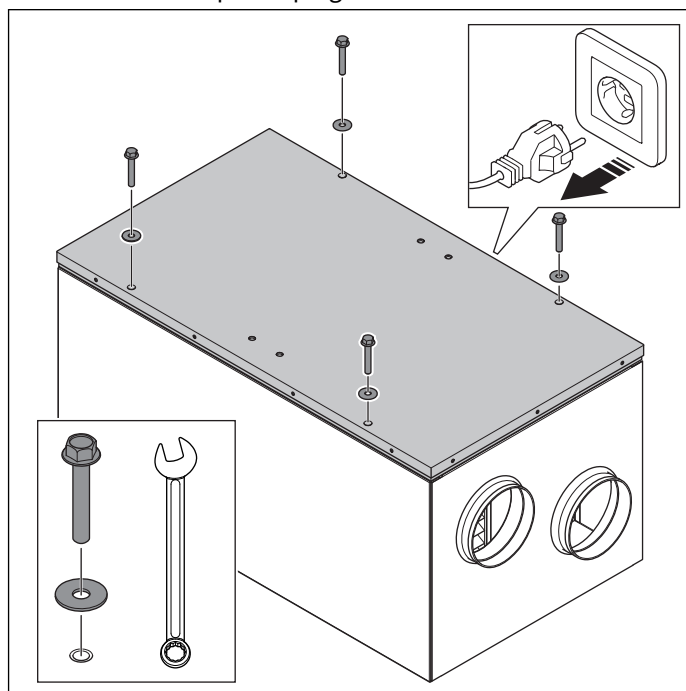
8.2.3 To replace the filters



WARNING

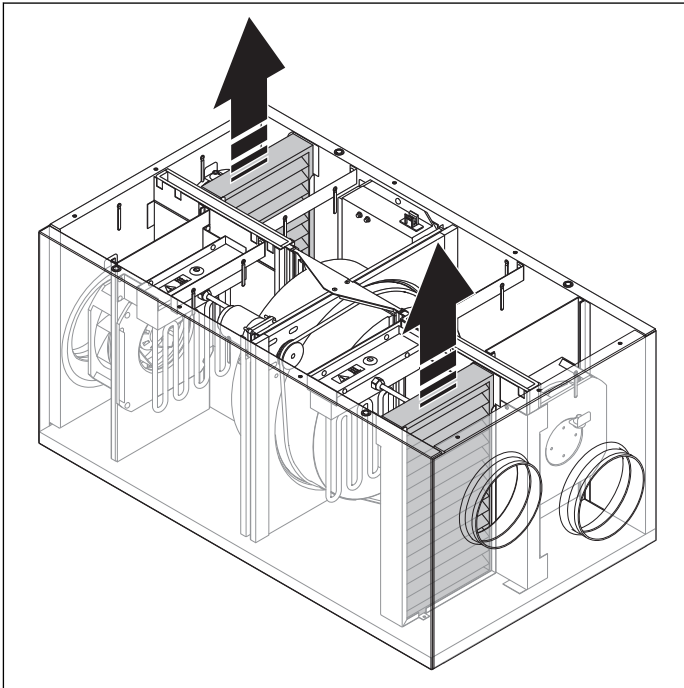
Use respiratory protection of class FFP2 or higher.

1. Disconnect the power plug.



2. Remove the screws and open the door.

3. Remove and discard the filters.



4. Install new filters of the correct type. Refer to [8.3 Spare parts, page 16](#).
5. Close the door and install the screws.
6. Connect the power plug.
7. Acknowledge the filter alarm. Refer to [7.2.1 To read and acknowledge alarms, page 13](#).
8. Reset the filter alarm. Refer to [7.2.2 To reset a filter alarm before the set interval, page 13](#).

8.3 Spare parts

Use only original spare parts from Fläkten.

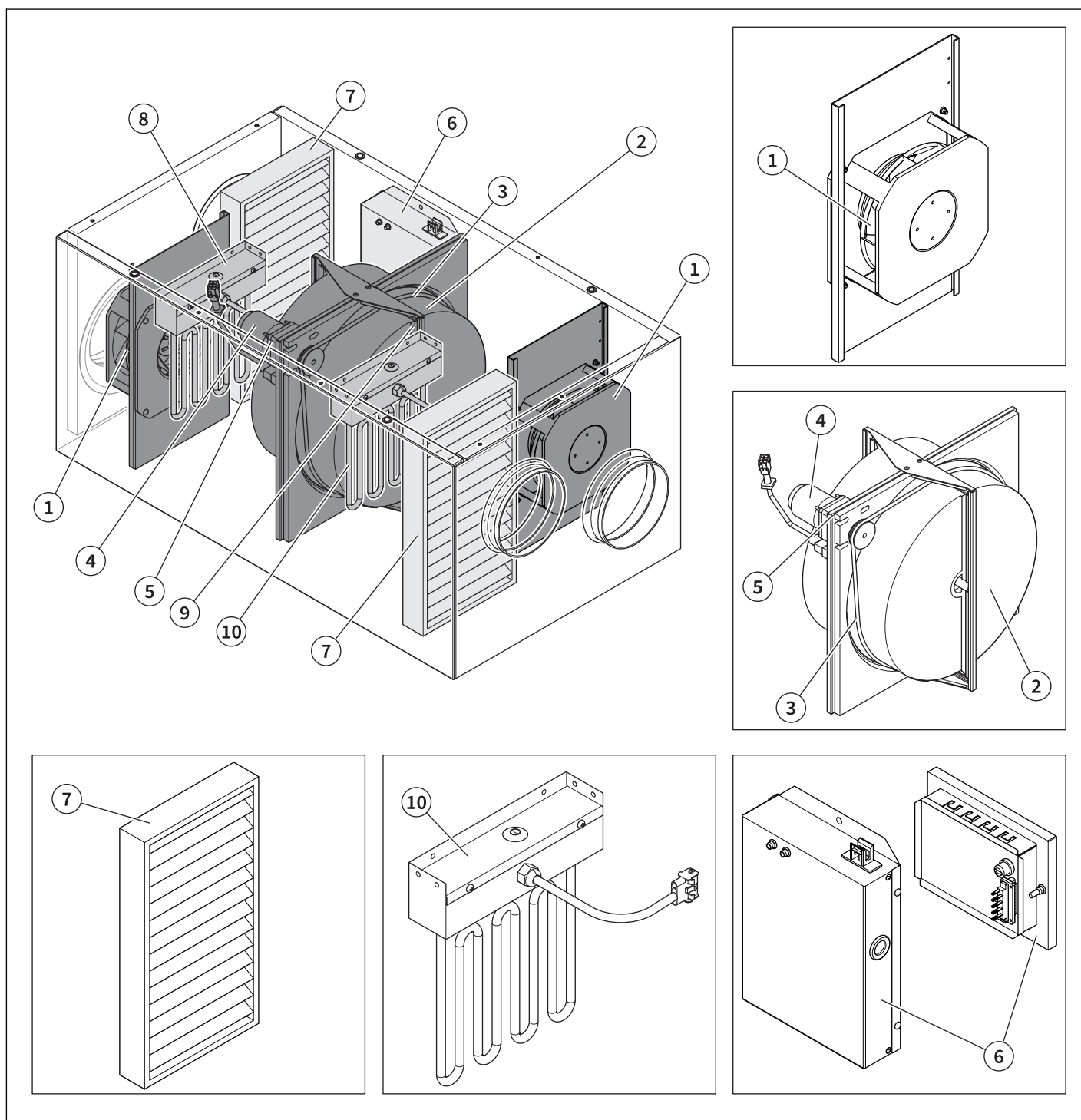


Table 1: RDAF Mini

Pos.	Designation	Name
1	RDAF-99-01-1	Motor with fan impeller
2	RDAF-99-02-1	Rotor, complete
3	RDAF-99-03-1	Drive belt, rotor
4	RDKS-99-01	Rotor motor
5	RDAF-99-04-2	Slide rail, rotor
6	RDAF-99-07-1	Control box, complete
7	RDAZ-21-1	Filter kit: - Supply air filter: ISO Coarse 85% (M5) - Extract air filter: ePM₁ 50% (F7)

Table continued...

Pos.	Designation	Name
8	RADF-99-05-1	Electric heater, post heater
9	RDAR-99-04-1	Brush strip
10	RADF-99-05-1	Electric heater, preheater. Only for replacement of defective preheater.

Table 2: RDAF Midi

Pos.	Designation	Name
1	RDAF-99-01-2	Motor with fan impeller
2	RDAE-99-02-1	Rotor, complete
3	RDAR-99-03-1	Drive belt, rotor
4	RDKS-99-01	Rotor motor
5	RDAF-99-04-2	Slide rail, rotor
6	RDAF-99-07-1	Control box, complete
7	RDAZ-12	Filter kit: - Supply air filter: ISO Coarse 85% (M5) - Extract air filter: ePM₁ 50% (F7)
8	RADF-99-05-1	Electric heater, post heater
9	RDAR-99-04-1	Brush strip
10	RADF-99-05-1	Electric heater, preheater. Only for replacement of defective preheater.

Table 3: RDAF Maxi

Pos.	Designation	Name
1	RDAF-99-01-3	Motor with fan impeller
2	RDAF-99-02-3	Rotor, complete
3	RDAF-99-03-3	Drive belt, rotor
4	ARBA-99-00-02	Rotor motor
5	RDAF-99-04-3	Slide rail, rotor
6	RDAF-99-07-1	Control box, complete
7	RDAZ-21-3	Filter kit: - Supply air filter: ISO Coarse 85% (M5) - Extract air filter: ePM₁ 50% (F7)
8	RADF-99-05-1	Electric heater, post heater
9	RDAF-99-06-3	Brush strip

NOTE

The electric heater preheater for RDAF Maxi is a duct-mounted heater. It can only be used for RDAF Maxi, generation 2.

9 Troubleshooting

9.1 Troubleshooting schedule

Problem	Cause	Solution
The product stops during operation.	The thermal overload protection of the fan motors has released.	Disconnect and connect the power supply.
	The manual thermal overload protection for the electric heater has released.	1. Disconnect the power supply. 2. Push the reset button. 3. Connect the power supply. 4. If the manual thermal overload protection for the electric heater releases again, speak to Fläkten support.
The operation mode cannot be changed.	• The product is in defrost mode. • The operation mode is set to forced mode through the cooker hood.	• Wait until the defrost procedure is completed. • Change to a different operation mode.

10 Disposal

10.1 To discard the product and the packaging material

This product is not domestic waste. It must be recycled at an approved disposal location for electrical and electronic equipment.

**CAUTION**

If you cannot discard the product, send the product to an applicable recycling company.

- Comply with applicable regional and international regulations for source separation and disposal of materials.
- Separate and sort these components:
 - a) Circuit boards, cables, coils, motors, sensors and other electronic components.
 - b) Filters that are not metal.
 - c) Light bulbs and fluorescent tubes.
 - d) Corrugated cardboard, plastic, expanded polystyrene and other packaging materials.
 - e) Metal. If there is mineral wool between the internal and external walls, remove it before you discard the metal.

NOTE

All products do not contain all components in the list.

11 Technical data

11.1 Technical data

	RDAF Mini	RDAF Midi	RDAF Maxi
Weight, kg	57	67	109
Electrical data			
Voltage, V	230	230	230
Frequency, Hz	50	50	50

Table continued...

	RDAF Mini	RDAF Midi	RDAF Maxi
Phases	1	1	1
Fan motors output, W	2 × 166	2 × 192	2 × 340
Electric preheater, W	1000	1000	1000 ¹
Electric postheater, W	1000	1000	1000
Rated output when pre-heater and postheater are installed, W	2186	2212	3460

11.2 Dimensions

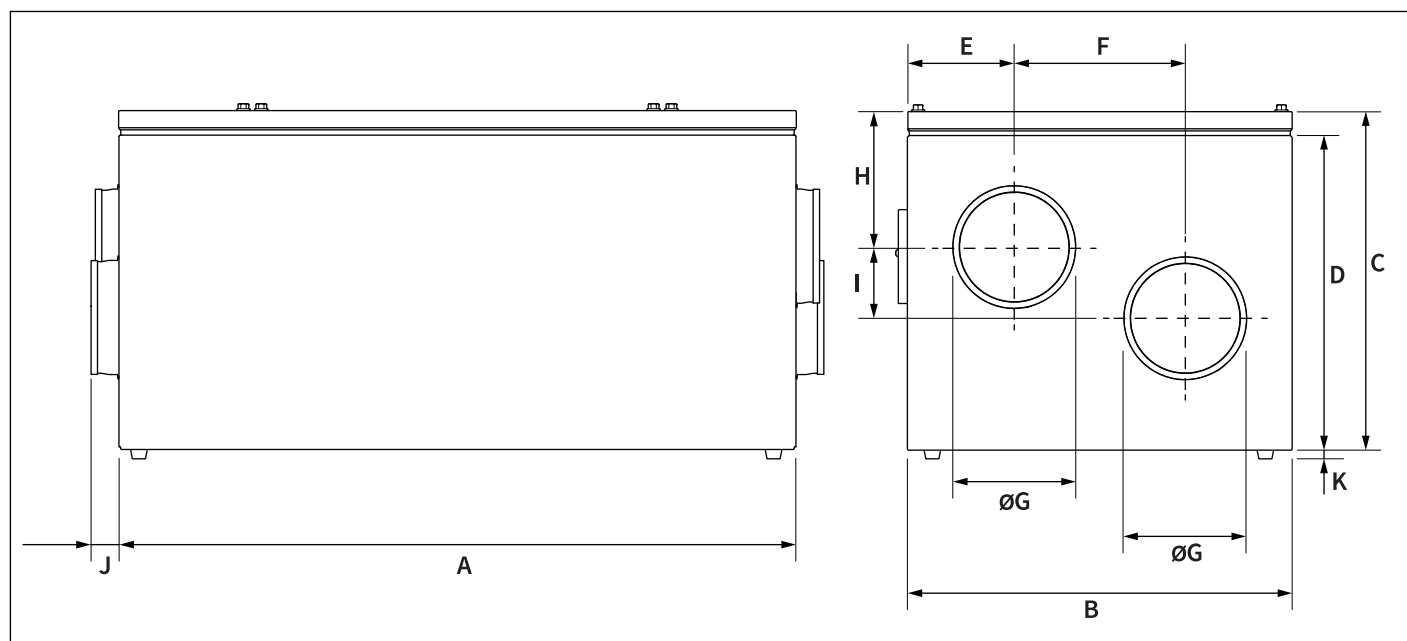
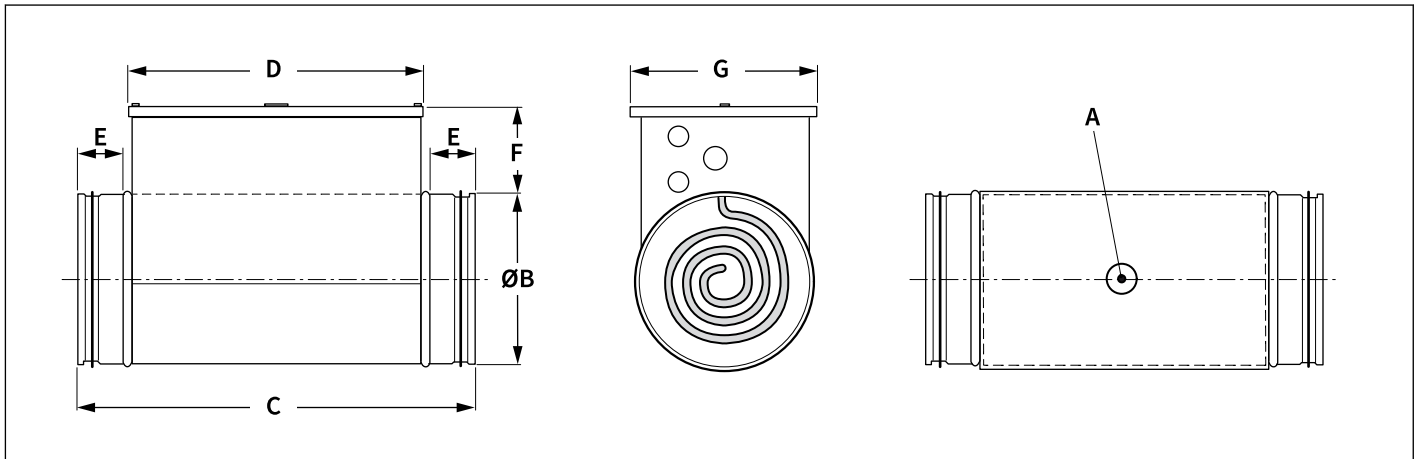


Table 4: Product dimensions, mm

Product variant	A	B	C	D	E	F	ØG	H	I	J	K
RDAF Mini	950	540	475	442	150	240	160	190	100	38	10
RDAF Midi	1000	580	510	480	155	270	200	207	100	37	10
RDAF Maxi	1200	750	685	652	198	355	250	247	195	43	10

¹ The electric heater preheater for RDAF Maxi is a duct-mounted heater. It can only be used for RDAF Maxi, generation 2.

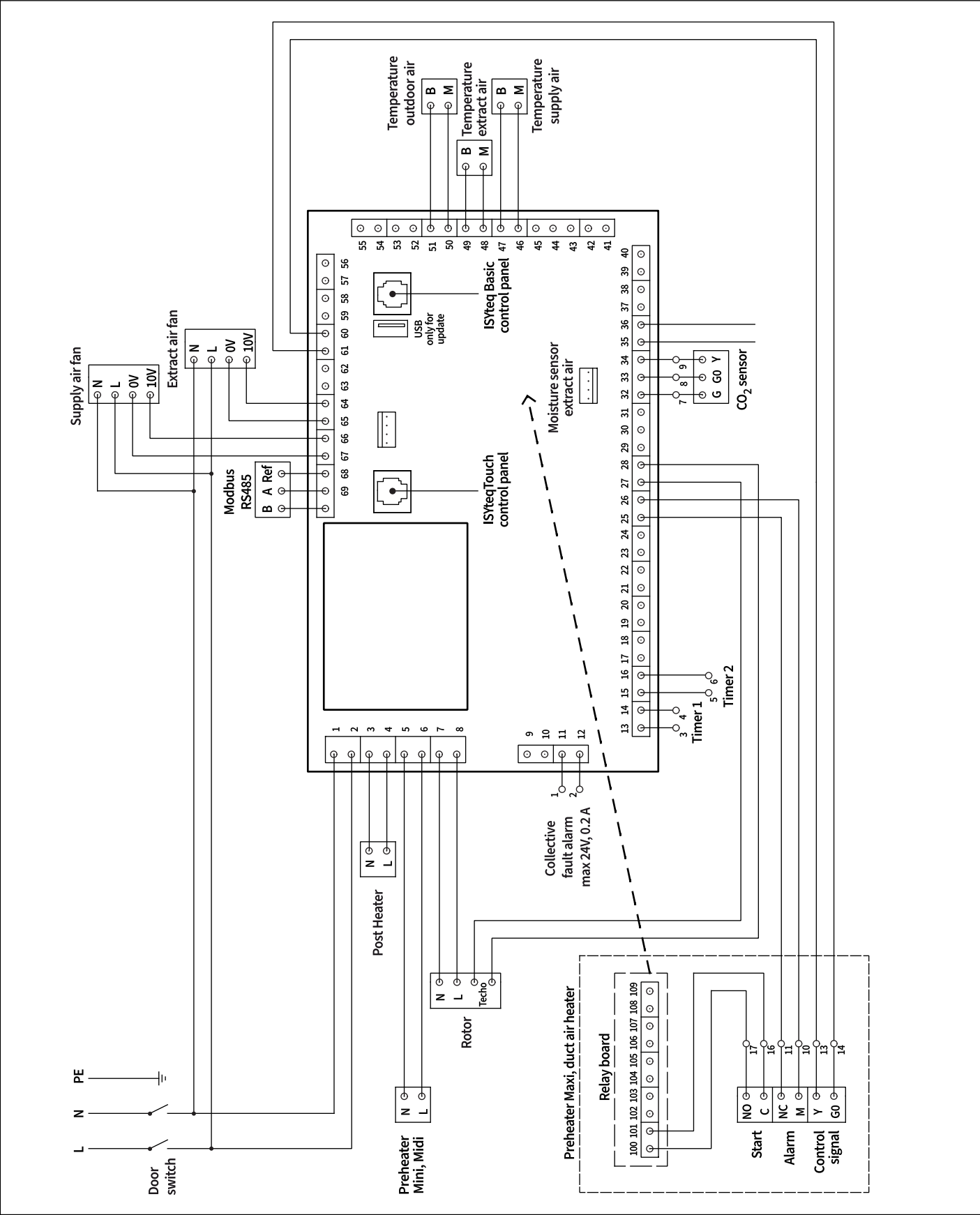


A: Manual reset of thermal overload protection

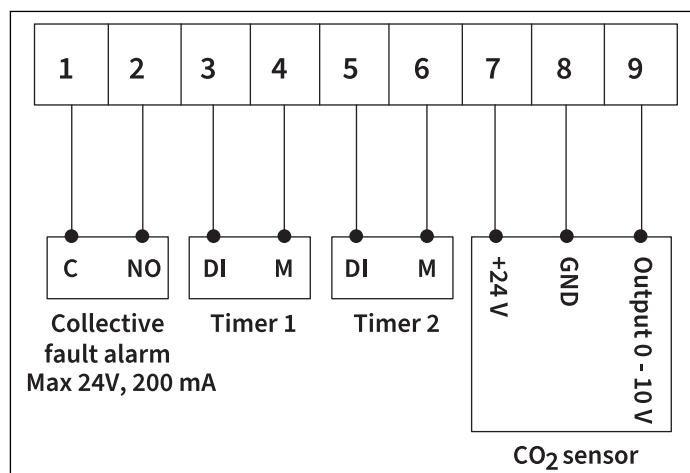
Table 5: Preheater for RDAF Maxi, generation 2. Dimensions, mm, and weight, kg.

ØB	C	D	E	F	G	Weight, kg
250	375	278	42	82	267	6

11.3 Wiring diagram

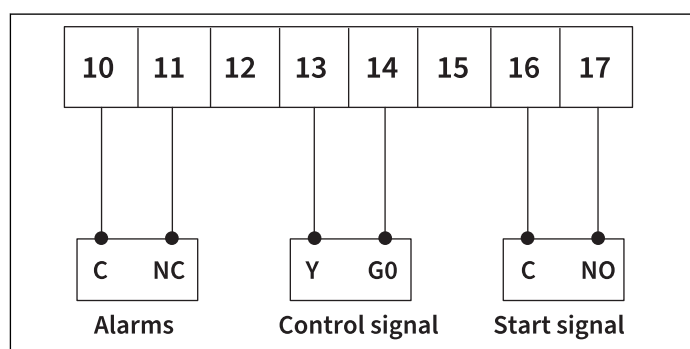


11.3.1 Connection of external functions



11.3.2 Connection of preheater for RDAF Maxi

The preheater for RDAF Maxi is supplied with power separately.



11.4 Settings parameters



CAUTION

Only let approved personnel do setting adjustments. There is a risk of damage to the product and the building if the settings are not correct.

There are 14 settings menus:

- Menu 1 is not applicable for ventilation in residential buildings.
- Menu 2 has documentation that is supplied separately. Speak to Fläkten support for information.
- Menu 3 has documentation that is supplied separately. Speak to Fläkten support for information.
- Menu 4. Fans. Refer to [11.4.1 Settings menu 4, page 25](#).
- Menu 5. Heating/Cooling. Refer to [11.4.2 Settings menu 5, page 25](#).
- Menu 6. Air quality. Refer to [11.4.3 Settings menu 6, page 26](#).
- Menu 7. Alarm management. Refer to [11.4.4 Settings menu 7, page 26](#).
- Menu 8. Configuration. Refer to [11.4.5 Settings menu 8, page 28](#).
- Menu 9 saves adjusted values to the control panel.
- Menu 10 uploads saved adjusted values from the control panel.
- Menu 11 copies saved values to an SD card.
- Menu 12 copies saved values from an SD card.
- Menu 13 is for troubleshooting only.
- Menu 14 logs off.

11.4.1 Settings menu 4

4. Fans		Range	Default value	R = Read only, RW = Read and write	Comment
4.1 Fan settings	Automatic return forced mode	Yes/No	Yes	RW	–
	Forcing time	0–9999 min	120 min	RW	–
	Start delay	0–32767 s	10 s	RW	The extract air fan and the rotor start immediately. The supply air fan starts after the set time delay.
	Rundown	0–32767 s	0 s	RW	Not applicable for residential ventilation.
	Heating stove time	0–360 min	30 min	RW	The operation status goes back to standard mode after the set time range.
4.2 Pressure flow	–	–	–	–	Not applicable for residential ventilation.

11.4.2 Settings menu 5

5. Heating/Cooling		Range	Default value	R = Read only, RW = Read and write	Comment
5.1 Preheater	Preheater	Yes/No	Yes	RW	–
	Setpoint preheater	-25–10°C	-12°C	RW	–
	Filter heating	Yes/No	No	RW	Not applicable for residential ventilation.
5.2 Heating/Cooling	Control mode	1–2	1	RW	Not applicable for residential ventilation.
	Cooling sequence	Yes/No	No	RW	
	DX cooling	Yes/No	No	RW	
	Block heating in summer	Yes/No	Yes	RW	–
	Postheater	On/Off	On	RW	–
	Relative or absolute value	Relative/Absolute	Relative	RW	Used for setpoints in time channels.
5.4 Defrosting	Temperature setpoint defrosting	-25–10°C	-10°C	R	–
5.5 Cooling recovery	Cooling recovery	Yes/No	Yes	RW	–
	Temperature difference (outdoor air - extract air)	0–15°C	2°C	RW	–
	Setpoint humidity	0–100%	50%	RW	–
5.6 Summer/Winter mode	Summer/winter mode	Summer/Winter	–	R	–
	Automatic/Manual mode	Auto/Manual	Auto	RW	–
	Manual Winter/Summer	Summer/Winter	Winter	RW	–

Table continued...

5. Heating/Cooling		Range	Default value	R = Read only, RW = Read and write	Comment
5.8 Night setback	Activate night setback	Yes/No	No	RW	–
	Start time	00.00–23.59	22.00	RW	–
	Stop time	00.00–23.59	06.00	RW	–
	Temperature difference	0–20°C	3°C	RW	Setpoint decreased during certain times.

11.4.3 Settings menu 6

6. Air quality		Range	Default value	R = Read only, RW = Read and write	Comment
6.1 CO ₂ control	CO ₂	Yes/No	No	RW	–
	Setpoint CO ₂	0–2000 ppm	800 ppm	RW	–
	P-band	0–2000 ppm	800 ppm	RW	–
	Int action time	0–9999 s	600 s	RW	–
	ppm at 0 V	0–9999 ppm	0 ppm	RW	–
	ppm at 10 V	0–9999 ppm	2000 ppm	RW	–
	Min. limit CO ₂	Low/Normal	Normal	RW	–
6.2 Moisture control	Moisture control	Yes/No	Yes	RW	–
	Absolute humidity supply air	0–100 g/kg	–	R	–
	Absolute humidity extract air	0–100 g/kg	–	R	–

11.4.4 Settings menu 7

7. Alarm management		Range	Default value	R = Read only, RW = Read and write	Comment
7.1 Alarm settings	Filter alarm time	0–600 days	180 days	RW	Set to 0 to deactivate filter alarm.
	Summation alarm output A+B	Yes/No	Yes	RW	–
	Activate temperature alarm	Yes/No	Yes	RW	–
	Temperature alarm	–10–10°C	5°C	RW	–
	Activate rotor belt test	Yes/No	No	RW	–
	Tacho signal alarm	Yes/No	Yes	RW	–

Table continued...

7. Alarm management		Range	Default value	R = Read only, RW = Read and write	Comment
7.2 Alarm categories	Fire alarm	A/B	A	RW	–
	Sensor error supply air	A/B	A	RW	–
	Sensor error outdoor air	A/B	A	RW	–
	Sensor error extract air	A/B	A	RW	–
	Sensor error frost protection	A/B	B	RW	Not applicable for residential ventilation.
	Sensor error defrosting	A/B	B	RW	Not applicable for residential ventilation.
	Sensor error AI10	A/B	B	RW	Not applicable for residential ventilation.
	Filter alarm	A/B	B	RW	Not applicable for residential ventilation.
	Fan monitor, supply air	A/B	B	RW	Not applicable for residential ventilation.
	Fan monitor, extract air	A/B	B	RW	Not applicable for residential ventilation.
	Pressure monitor heat exchanger	A/B	B	RW	Not applicable for residential ventilation.
	Rotor monitor	A/B	A	RW	–
	Filter monitor, supply air	A/B	B	RW	Not applicable for residential ventilation.
	Filter monitor, extract air	A/B	B	RW	Not applicable for residential ventilation.
	Overheating electric heater	A/B	B	RW	Not applicable for residential ventilation.
	Circ. pump heating	A/B	B	RW	Not applicable for residential ventilation.
	Frost protection	A/B	B	RW	Not applicable for residential ventilation.
	Summation alarm cooling	A/B	B	RW	Not applicable for residential ventilation.
	Circ. pump cooling	A/B	B	RW	Not applicable for residential ventilation.
	Temperature alarm	A/B	A	RW	–
	Rotor belt alarm	A/B	A	RW	Function not imported.
7.3 Alarm delays	Fire alarm	0–9999 s	2	RW	External function.
	Sensor error supply air	0–9999 s	5	RW	–
	Sensor error outdoor air	0–9999 s	5	RW	–
	Sensor error extract air	0–9999 s	5	RW	–
	Sensor error frost protection	0–9999 s	5	RW	Not applicable for residential ventilation.
	Sensor error defrosting	0–9999 s	5	RW	Not applicable for residential ventilation.
	Sensor error AI10	0–9999 s	5	RW	Not applicable for residential ventilation.
	Fan monitor, supply air	0–9999 s	120	RW	Not applicable for residential ventilation.
	Fan monitor, extract air	0–9999 s	120	RW	Not applicable for residential ventilation.
	Rotor monitor	0–9999 s	2	RW	Not applicable for residential ventilation.
	Filter monitor, supply air	0–9999 s	60	RW	Not applicable for residential ventilation.
	Filter monitor, extract air	0–9999 s	60	RW	Not applicable for residential ventilation.
	Overheating electric heater	0–9999 s	2	RW	Not applicable for residential ventilation.
	Circ. pump heating	0–9999 s	2	RW	Not applicable for residential ventilation.
	Frost protection	0–9999 s	2	RW	Not applicable for residential ventilation.
	Summation alarm cooling	0–9999 s	2	RW	Not applicable for residential ventilation.
	Circ. pump cooling	0–9999 s	2	RW	Not applicable for residential ventilation.
	Temperature alarm	0–9999 min	10	RW	–
	Rotor belt alarm	0–9999 s	60	RW	Function not imported.

Table continued...

7. Alarm management		Range	Default value	R = Read only, RW = Read and write	Comment
7.4 Contact functions	DI1 Timer input 1	NO/NC	NO	RW	–
	DI2 Timer input 2	NO/NC	NO	RW	–
	DI3 Rotation motor	NO/NC	NO	RW	Not applicable for residential ventilation.
	DI4 Pressure monitor de-frosting	NO/NC	NO	RW	Not applicable for residential ventilation.
	DI5 Fan/Filter monitor TF	NO/NC	NO	RW	Not applicable for residential ventilation.
	DI6 Fan/Filter monitor FF	NO/NC	NO	RW	Not applicable for residential ventilation.
	DI8 Fire alarm	NO/NC	NO	RW	External function, should be changed to NC during use.
	DI9 Cooker hood connector	NO/NC	NO	RW	Not applicable for residential ventilation.
	DI7 Alarm heating	NO/NC	NO	RW	Not applicable for residential ventilation.
	DI10 Alarm cooling	NO/NC	NO	RW	Not applicable for residential ventilation.

11.4.5 Settings menu 8

8. Configuration		Range	Default value	R = Read only, RW = Read and write	Comment
8.1 IP address	IP address	Static/Dynamic	Dynamic	RW	Static = Manual setting. Dynamic = Automatic assignment of IP address via DHCP.
	Subnet mask	–	–	RW	–
	Gateway	–	–	RW	–
8.2 Menu config.	Log to USB	Yes/No	No	RW	Only for troubleshooting.
	Unit type	–	Domestic	R	–
	Auto logout time	0–32767 min	10 min	RW	–
	Threshold value heating	0–100%	0%	RW	–
	Threshold value cooling	0–100%	0%	RW	–
	Threshold value recovery	0–100%	0%	RW	–
	Threshold value external fan	0–100%	5%	RW	–
8.3 Screen saver	Screen saver	On/Off	On	RW	–
	Time	–	10 min	RW	–
8.4 Modbus	Modbus slave address BMS	0–255	2	RW	–
	Baud rate	9.6, 19.2, 38.4	19.2	RW	–
	Parity	no parity, even, odd	None	RW	–
	Data bit	7.8	8	RW	–
	Stop bit	1.2	1	RW	–
8.5 Mac address	Mac address	–	–	R	–
8.6 Reset					
8.6.1 Soft reset	Reset	–	–	–	All values are reset except adjusted values and setpoints.
8.6.2 Factory reset	Reset	–	–	–	All values are reset.

Table continued...

8. Configuration		Range	Default value	R = Read only, RW = Read and write	Comment
8.7 Password	Automatic logout	Yes/No	Yes	RW	–
	Password 1	–	–	RW	Used to change the password.
8.8 About	Software HMI	–	–	–	–
	Software control card	–	–	R	–
	Bootloader version	–	–	R	–

11.5 Product information in accordance with Commission Regulation (EU) No. 1254/2014 Annex IV as referred to in Article 3(1b)

VillaMASTER RDAF Mini + ISYteq Basic

(a) Brand	Fläkten		
(b) Model designation	VillaMASTER RDAF Mini		
(c) Specific energy use (SEC)	Climate zone	SEC	Energy class
	Cold	-68.5	–
	Average	-30.1	B
	Warm	-8.1	–
(d) Unit type	Bidirectional		
(e) Drive unit	Stepless speed controller		
(f) Heat recovery system	Regenerative rotary energy recovery		
(g) Thermal efficiency	78.9%		
(H) Maximum airflow	353 m ³ /s		
(i) Additional fan output, maximum flow	175 W		
(j) Sound power level	40 dB(A)		
(k) Reference flow	0.069 m ³ /s		
(l) Reference pressure difference	50 Pa		
(m) Specified additional output	0.32 W/m ³ /h		
(n) Control type	Manual control. Control factor 1.0		
(o) Carry over	10%		
(p) Mixing rate	Not applicable		
(q) Visual filter alarm	Filter alarm ISYteq Basic		
(r) Instructions exhaust air grille	Not applicable		
(s) Web address for dismantling and installation	https://flakten.se		
(t) Airflow sensitivity	Not applicable		
(u) Air tightness, unit not connected to duct	Not applicable		
(v) Annual electricity consumption	403 kWh/year		
(w) Annual heating saved	Climate zone	Savings (kWh/year)	
	Cold	7863	
	Average	4019	
	Warm	1817	

VillaMASTER RDAF Mini + RDKZ-53-5

(a) Brand	Fläkten		
(b) Model designation	VillaMASTER RDAF Mini		
(c) Specific energy use (SEC)	Climate zone	SEC	Energy class
	Cold	-70.2	–
	Average	-31.4	B
	Warm	-9.2	–
(d) Unit type	Bidirectional		
(e) Drive unit	Stepless speed controller		
(f) Heat recovery system	Regenerative rotary energy recovery		
(g) Thermal efficiency	78.9%		
(h) Maximum airflow	353 m³/s		
(i) Additional fan output, maximum flow	175 W		
(j) Sound power level	40 dB(A)		
(k) Reference flow	0.069 m³/s		
(l) Reference pressure difference	50 Pa		
(m) Specified additional output	0.32 W/m³/h		
(n) Control type	Clock control. Control factor 0.95		
(o) Carry over	10%		
(p) Mixing rate	Not applicable		
(q) Visual filter alarm	Filter alarm ISYteq Touch 2.5		
(r) Instructions exhaust air grille	Not applicable		
(s) Web address for dismantling and installation	https://flakten.se		
(t) Airflow sensitivity	Not applicable		
(u) Air tightness, unit not connected to duct	Not applicable		
(v) Annual electricity consumption	364 kWh/year		
(w) Annual heating saved	Climate zone	Savings (kWh/year)	
	Cold	7925	
	Average	4051	
	Warm	1832	

VillaMASTER RDAF Mini + ISYteq Touch 2.5 + CO₂

(a) Brand	Fläkten		
(b) Model designation	VillaMASTER RDAF Mini		
(c) Specific energy use (SEC)	Climate zone	SEC	Energy class
	Cold	-73.2	–
	Average	-33.9	B
	Warm	-11.3	–
(d) Unit type	Bidirectional		
(e) Drive unit	Stepless speed controller		
(f) Heat recovery system	Regenerative rotary energy recovery		
(g) Thermal efficiency	78.9%		

Table continued...

(h) Maximum airflow	353 m³/s	
(i) Additional fan output, maximum flow	175 W	
(j) Sound power level	40 dB(A)	
(k) Reference flow	0.069 m³/s	
(l) Reference pressure difference	50 Pa	
(m) Specified additional output	0.32 W/m³/h	
(n) Control type	Central on-demand control. Control factor 0.85	
(o) Carry over	10%	
(p) Mixing rate	Not applicable	
(q) Visual filter alarm	Filter alarm ISYteq Touch 2.5	
(r) Instructions exhaust air grille	Not applicable	
(s) Web address for dismantling and installation	https://flakten.se	
(t) Airflow sensitivity	Not applicable	
(u) Air tightness, unit not connected to duct	Not applicable	
(v) Annual electricity consumption	291 kWh/year	
(w) Annual heating saved	Climate zone	Savings (kWh/year)
	Cold	8050
	Average	4115
	Warm	1861

VillaMASTER RDAF Midi + ISYteq Basic

(a) Brand	Fläkten		
(b) Model designation	VillaMASTER RDAF Midi		
(c) Specific energy use (SEC)	Climate zone	SEC	Energy class
	Cold	-73.1	–
	Average	-32.8	B
	Warm	-9.7	–
(d) Unit type	Bidirectional		
(e) Drive unit	Stepless speed controller, stepless adjustment		
(f) Heat recovery system	Regenerative rotary energy recovery		
(g) Thermal efficiency	78.5%		
(H) Maximum airflow	454 m³/s		
(i) Additional fan output, maximum flow	209 W		
(j) Sound power level	41 dB(A)		
(k) Reference flow	0.088 m³/s		
(l) Reference pressure difference	50 Pa		
(m) Specified additional output	0.30 W/m³/h		
(n) Control type	Manual control. Control factor 1.0		
(o) Carry over	7%		
(p) Mixing rate	Not applicable		
(q) Visual filter alarm	Filter alarm ISYteq Basic		
(r) Instructions exhaust air grille	Not applicable		

Table continued...

(s) Web address for dismantling and installation	https://flakten.se	
(t) Airflow sensitivity	Not applicable	
(u) Air tightness, unit not connected to duct	Not applicable	
(v) Annual electricity consumption	376 kWh/year	
(w) Annual heating saved	Climate zone	Savings (kWh/year)
	Cold	8247
	Average	4216
	Warm	1906

VillaMASTER RDAF Midi + RDKZ-53-5

(a) Brand	Fläkten		
(b) Model designation	VillaMASTER RDAF Midi		
(c) Specific energy use (SEC)	Climate zone	SEC	Energy class
	Cold	-74.7	–
	Average	-34.0	A
	Warm	-10.7	–
(d) Unit type	Bidirectional		
(e) Drive unit	Stepless speed controller, stepless adjustment		
(f) Heat recovery system	Regenerative rotary energy recovery		
(g) Thermal efficiency	78.5%		
(h) Maximum airflow	454 m³/s		
(i) Additional fan output, maximum flow	209 W		
(j) Sound power level	41 dB(A)		
(k) Reference flow	0.088 m³/s		
(l) Reference pressure difference	50 Pa		
(m) Specified additional output	0.30 W/m³/h		
(n) Control type	Clock control. Control factor 0.95		
(o) Carry over	7%		
(p) Mixing rate	Not applicable		
(q) Visual filter alarm	Filter alarm ISYteq Touch 2.5		
(r) Instructions exhaust air grille	Not applicable		
(s) Web address for dismantling and installation	http://flakten.se		
(t) Airflow sensitivity	Not applicable		
(u) Air tightness, unit not connected to duct	Not applicable		
(v) Annual electricity consumption	339 kWh/year		
(w) Annual heating saved	Climate zone	Savings (kWh/year)	
	Cold	8314	
	Average	4250	
	Warm	1922	

VillaMASTER RDAF Midi + ISYteq Touch 2.5 + CO₂

(a) Brand	Fläkten
(b) Model designation	VillaMASTER RDAF Midi

Table continued...

(c) Specific energy use (SEC)	Climate zone	SEC	Energy class
	Cold	-77.7	–
	Average	-36.4	A
	Warm	-12.7	–
(d) Unit type	Bidirectional		
(e) Drive unit	Stepless speed controller, stepless adjustment		
(f) Heat recovery system	Regenerative rotary energy recovery		
(g) Thermal efficiency	78.5%		
(h) Maximum airflow	454 m ³ /s		
(i) Additional fan output, maximum flow	209 W		
(j) Sound power level	41 dB(A)		
(k) Reference flow	0.088 m ³ /s		
(l) Reference pressure difference	50 Pa		
(m) Specified additional output	0.30 W/m ³ /h		
(n) Control type	Central on-demand control. Control factor 0.85		
(o) Carry over	7%		
(p) Mixing rate	Not applicable		
(q) Visual filter alarm	Filter alarm ISYteq Touch 2.5		
(r) Instructions exhaust air grille	Not applicable		
(s) Web address for dismantling and installation	https://flakten.se		
(t) Airflow sensitivity	Not applicable		
(u) Air tightness, unit not connected to duct	Not applicable		
(v) Annual electricity consumption	271 kWh/year		
(w) Annual heating saved	Climate zone	Savings (kWh/year)	
	Cold	8448	
	Average	4318	
	Warm	1953	

VillaMASTER RDAF Maxi + ISYteq Basic

(a) Brand	Fläkten		
(b) Model designation	VillaMASTER RDAF Maxi		
(c) Specific energy use (SEC)	Climate zone	SEC	Energy class
	Cold	-75	–
	Average	-34.4	A
	Warm	-11.2	–
(d) Unit type	Bidirectional		
(e) Drive unit	Stepless speed controller		
(f) Heat recovery system	Regenerative rotary energy recovery		
(g) Thermal efficiency	79.4%		
(H) Maximum airflow	815 m ³ /s		
(i) Additional fan output, maximum flow	341 W		
(j) Sound power level	48 dB(A)		

Table continued...

(k) Reference flow	0.159 m ³ /s	
(l) Reference pressure difference	50 Pa	
(m) Specified additional output	0.26 W/m ³ /h	
(n) Control type	Manual control. Control factor 1.0	
(o) Carry over	9%	
(p) Mixing rate	Not applicable	
(q) Visual filter alarm	Filter alarm ISYteq Basic	
(r) Instructions exhaust air grille	Not applicable	
(s) Web address for dismantling and installation	https://flakten.se	
(t) Airflow sensitivity	Not applicable	
(u) Air tightness, unit not connected to duct	Not applicable	
(v) Annual electricity consumption	322 kWh/year	
(w) Annual heating saved	Climate zone	Savings (kWh/year)
	Cold	8303
	Average	4244
	Warm	1919

VillaMASTER RDAF Maxi + RDKZ-53-5

(a) Brand	Fläkten		
(b) Model designation	VillaMASTER RDAF Maxi		
(c) Specific energy use (SEC)	Climate zone	SEC	Energy class
	Cold	-76.4	–
	Average	-35.5	A
	Warm	-12.1	–
(d) Unit type	Bidirectional		
(e) Drive unit	Stepless speed controller		
(f) Heat recovery system	Regenerative rotary energy recovery		
(g) Thermal efficiency	79.4%		
(h) Maximum airflow	815 m ³ /s		
(i) Additional fan output, maximum flow	341 W		
(j) Sound power level	48 dB(A)		
(k) Reference flow	0.159 m ³ /s		
(l) Reference pressure difference	50 Pa		
(m) Specified additional output	0.26 W/m ³ /h		
(n) Control type	Clock control. Control factor 0.95		
(o) Carry over	9%		
(p) Mixing rate	Not applicable		
(q) Visual filter alarm	Filter alarm ISYteq Basic and ISYteq Touch 2.5		
(r) Instructions exhaust air grille	Not applicable		
(s) Web address for dismantling and installation	https://flakten.se		
(t) Airflow sensitivity	Not applicable		
(u) Air tightness, unit not connected to duct	Not applicable		

Table continued...

(v) Annual electricity consumption	290 kWh/year	
(w) Annual heating saved	Climate zone	Savings (kWh/year)
	Cold	8367
	Average	4277
	Warm	1934

VillaMASTER RDAF Maxi + ISYteq Touch 2.5 + CO₂

(a) Brand	Fläkten		
(b) Model designation	VillaMASTER RDAF Maxi		
(c) Specific energy use (SEC)	Climate zone	SEC	Energy class
	Cold	-79.1	–
	Average	-37.6	A
	Warm	-13.8	–
(d) Unit type	Bidirectional		
(e) Drive unit	Stepless speed controller		
(f) Heat recovery system	Regenerative rotary energy recovery		
(g) Thermal efficiency	79.4%		
(h) Maximum airflow	815 m ³ /s		
(i) Additional fan output, maximum flow	341 W		
(j) Sound power level	48 dB(A)		
(k) Reference flow	0.159 m ³ /s		
(l) Reference pressure difference	50 Pa		
(m) Specified additional output	0.26 W/m ³ /h		
(n) Control type	Central on-demand control. Control factor 0.85		
(o) Carry over	9%		
(p) Mixing rate	Not applicable		
(q) Visual filter alarm	Filter alarm ISYteq Touch 2.5		
(r) Instructions exhaust air grille	Not applicable		
(s) Web address for dismantling and installation	https://flakten.se		
(t) Airflow sensitivity	Not applicable		
(u) Air tightness, unit not connected to duct	Not applicable		
(v) Annual electricity consumption	232 kWh/year		
(w) Annual heating saved	Climate zone	Savings (kWh/year)	
	Cold	8495	
	Average	4343	
	Warm	1964	

12 Declaration of Conformity

12.1 EC Declaration of Conformity

EC Declaration of Conformity

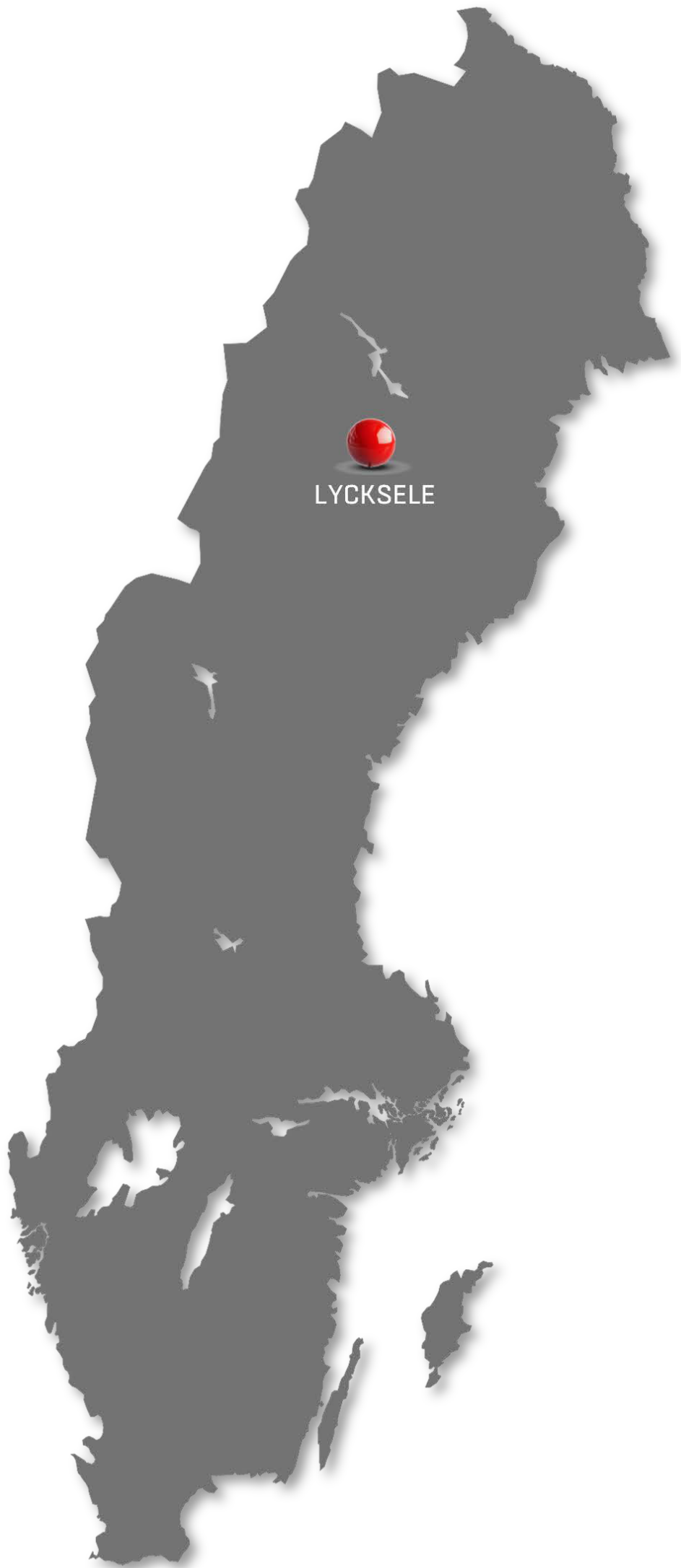


Herewith we declare that the air movement equipment designated below, on the basis of its design and construction, in the form brought on to the market by us, is in accordance with the relevant requirements of the **EC Council directives**. If alterations are made to the machinery without prior consultations with us, this declaration becomes invalid. We further declare that the equipment identified below may be intended to be assembled with other equipment/machines to constitute machinery, which shall not be put into service until the assembled machinery has been declared in conformity with the provisions of these EC Council directives.

Manufacturer:	Flakten Systems AB Timmervägen 68 921 33 Lycksele
Designation of equipment:	Function/application: Ventilation unit Commercial name: MiniMASTER Micro, RDKM/MiniMASTER, RDKS HouseMASTER, RDAS/VillaMASTER, RDAF
Relevant EC Council directives:	Machinery Directive (MD) 2006/42/EC Electromagnetic Compatibility Directive (EMC) 2014/30/EU Ecodesign Directive (ERP) 2009/125/EC (Commission Regulation (EU) No 1253/2014) EU RoHS Directive 2011/65/EU
Applied standards:	The machine is designed and constructed in accordance with the following standards in relevant parts: EN ISO 12100:2010 EN 60204-1 EN IEC 61000-6-1 EN 61000-6-3 EN 60335-1 EN 60335-2-40,31 EN 50106 EN 62233 EN 50581:2012 EN 13141-7 SS-EN 308:1997 Safety of machinery – General principles for design – Risk assessment and risk reduction Safety of machinery – Electrical equipment of machines – General requirements Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity standard for residential, commercial and light-industrial environments Electromagnetic compatibility (EMC) – Part 6-3: Generic standards – Emission standard for residential, commercial and light-industrial environments Household and similar appliances – Safety – Part 1: General requirements Household and similar appliances – Safety – Part 2: Particular requirements Safety of household and similar electrical appliances – Particular rules for routine tests referring to appliances under the scope of EN 60335-1 Measurement methods for electromagnetic fields of household appliances and similar apparatus regarding human exposure Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances Ventilation for buildings – Performance testing of components / products for residential ventilation Part 7 (excluding thermal characteristic test) Heat exchangers – Test procedures for establishing performance of air to air and flue gases heat recovery devices (for regenerative heat exchanger thermal test) A risk analysis has been made according to requirements of the Directive for Machinery.
Technical file compiled by:	Ivan Harnesk Flakten Systems AB Timmervägen 68 SE-921 33 Lycksele Sweden
Signed for and on behalf of the manufacturer by:	Ivan Harnesk, CEO

Date: Lycksele, Oktober 1, 2025

Flakten Systems AB



LYCKSELE

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MADE IN SWEDEN

FLAKTEN SYSTEMS AB

www.flakten.se