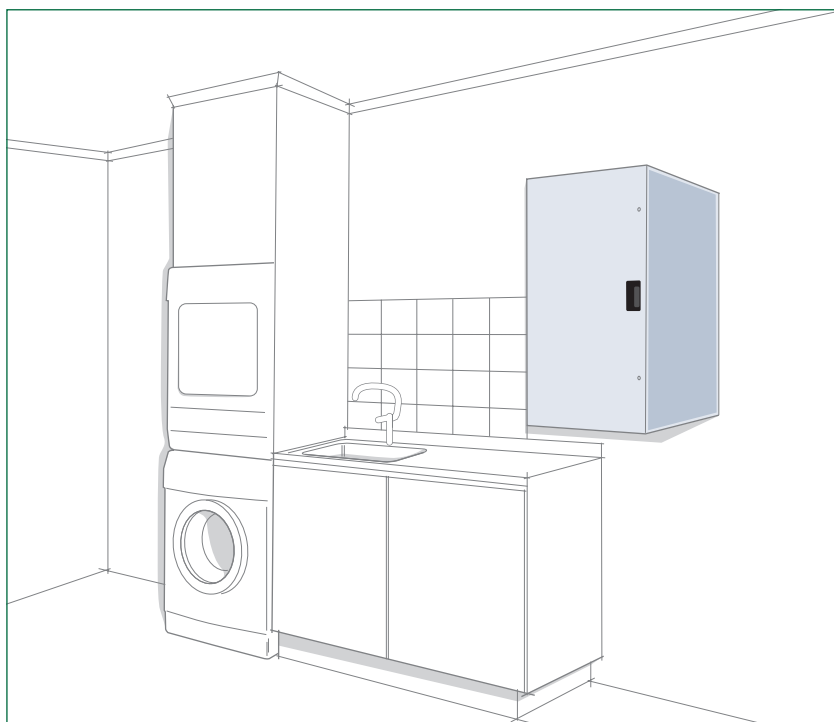


# Heat recovery unit RDAS



Heat recovery unit RDAS is based on our RDAR unit and develops this further. The unit has a rotary heat exchanger with stepless speed control. This allows for very precise temperature control, resulting in higher accuracy of the desired supply air temperature. In addition, a function which automatically limits the rotary heat exchanger's moisture recovery at high levels of humidity in the indoor air, is available as an optional extra.

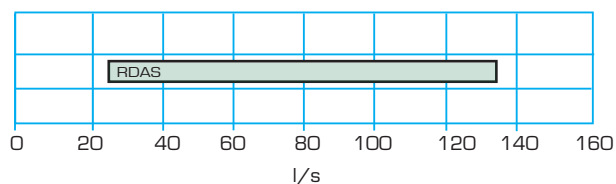
The RDAS unit is equipped with the Flakt Woods control system Curo<sup>®</sup>, supplemented by a graphic control panel Curo<sup>®</sup> Touch or a simpler membrane panel Curo<sup>®</sup> Basic.

The unit is primarily intended for housing units and smaller commercial premises, and can be located in warm or cold spaces. All connections are at the top and the unit can be wall-mounted or placed standing on the floor or lying on the floor with the door facing up. RDAF is delivered with 2 m connection cable for control panel.

## Energy savings

RDAS is a heat recovery unit with low energy consumption. To achieve this, highly efficient EC motors are used. Measurements show that the energy consumption of these motors is just 50% - 60% of the corresponding figure for conventional AC motors. RDAS is equipped with a rotary heat exchanger with a temperature efficiency of up to 85% (conditions according to EN 308).

## Flow diagram



## Product facts

- Temperature efficiency, up to 85%
- Variable speed rotary heat exchanger
- Highly efficient EC motors
- Individually adjustable fans
- Recommended for residential areas of up to 280 m<sup>2</sup> (105 l/s)
- Supply and extract air flow
- Filter, class M5/G4
- Does not require draining
- Easy to install
- Easy to service
- Automatic limit on moisture recovery (optional)
- Graphic control panel Curo<sup>®</sup> Touch (optional)
- Modbus communication

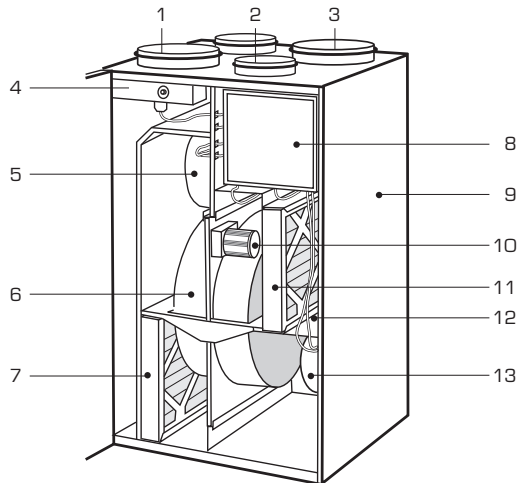
## Product code example:

RDAS-1-1-1-2-0-5-1

Heat recovery unit RDAS with post-heating, moisture control, standard filter and Ethernet connection.

# Description, electrical data, control equipment

## Main parts of the unit



- |                       |                      |                          |
|-----------------------|----------------------|--------------------------|
| 1. Outdoor air sensor | 6. Heat exchanger    | 10. Heat exchanger motor |
| 2. Extract air sensor | 7. Supply air filter | 11. Extract air filter   |
| 3. Supply air sensor  | 8. Control unit      | 12. Post-heater          |
| 4. Pre-heater         | 9. Casing            | 13. Supply air fan       |
| 5. Extract air fan    |                      |                          |

## Casing

The outer casing is made from white lacquered steel and the inner casing from galvanized steel, with 25 mm of rockwool insulation in between. Screws are used to lock the unit door.

## Fans

The fans are driven by energy-efficient EC motors. These are easy to remove for service and maintenance. Fan speeds can be adjusted steplessly, independently of each other.

## Heat exchanger

The unit is equipped with a rotary heat exchanger made of aluminium, which has a temperature efficiency of up to 85%. The exchanger has stepless speed control and is controlled automatically by the built-in control unit.

The unit is also equipped with automatic defrosting. The heat exchanger can be removed for cleaning.

Air flow, l/s	50	75	100	125
Temperature efficiency, %	85	83	82	80

The table above shows the unit's temperature efficiency in % at a given flow, with conditions according to EN 308.

## Pre-heating and post-heating devices

The unit has space for built-in electric pre-heating and post-heating devices. In areas where the design external temperature (DUT5) is lower than  $-25\text{ }^{\circ}\text{C}$  the unit should be supplemented with a pre-heating device.

The unit can easily be fitted with heaters retrospectively.

## Filter

The unit is fitted with class M5 filters for the supply air and G4 for the extract air as standard.

## Electrical data

Voltage: 230V, single phase 50 Hz.

Code	Fan motors Rated output, W	Pre-heater El., W	Post-heater El., W	Rated output <sup>1)</sup> El., W
RDAS	2 x 170	1000	1000	2360

<sup>1)</sup> Rated output applies when both pre- and post-heating devices are installed.

## Control equipment

The unit is equipped with an electronic control unit. The control unit is incorporated in the unit and controls the operation of the fans, the rotary heat exchanger and any pre-heating or post-heating device.

### Fan control

Three operating modes can be selected via the control panel (accessory):

- "AWAY" is used when there is a reduced need for ventilation, for instance holidays
- "HOME" is used for normal ventilation flow
- "FORCED" is used when there is a greater need for ventilation (it will automatically revert after 120 min)

The fan speeds can be adjusted steplessly, independently of each other through one of our control panels (optional). The values read from Curo® Basic with flashing LEDs and Curo® Touch in plaintext.

### Temperature control

The control unit regulates the rotary heat exchanger and any post-heating device to maintain the set temperature.

The supply air temperature is adjusted towards the desired setpoint value in two steps. First, by means of energy recovery from the rotary heat exchanger. Second, if this is not enough, by using the post-heater.

The pre-heating device is controlled by the external temperature. The unit post-heating device controls the supply air temperature. The heaters are only activated when the rotary heat exchanger is operating.

During cold periods, when frost may form in the impeller, the control unit activates a defrosting function. Defrosting takes place every 6 hours when the external temperature is below  $-10\text{ }^{\circ}\text{C}$ .

### Cooling recovery

In the summer, if the extract air is cooler than the outdoor air, the rotary heat exchanger starts to recover cooling from the cooler extract air. This primarily applies if there is some form of refrigeration machine in the house.

### Alarm

The control panel (accessory) has an alarm indicator. The panel indicates when it is time for filter replacement.

## Packaging

The unit is delivered on a pallet with corrugated fibre-board corner pads for protection. Mounting brackets for wall mounting, rubber pads for floor installation and operation, maintenance and installation instructions are included.

# Air flow, pressure drop, SFPv, sound data

## Supply air fan

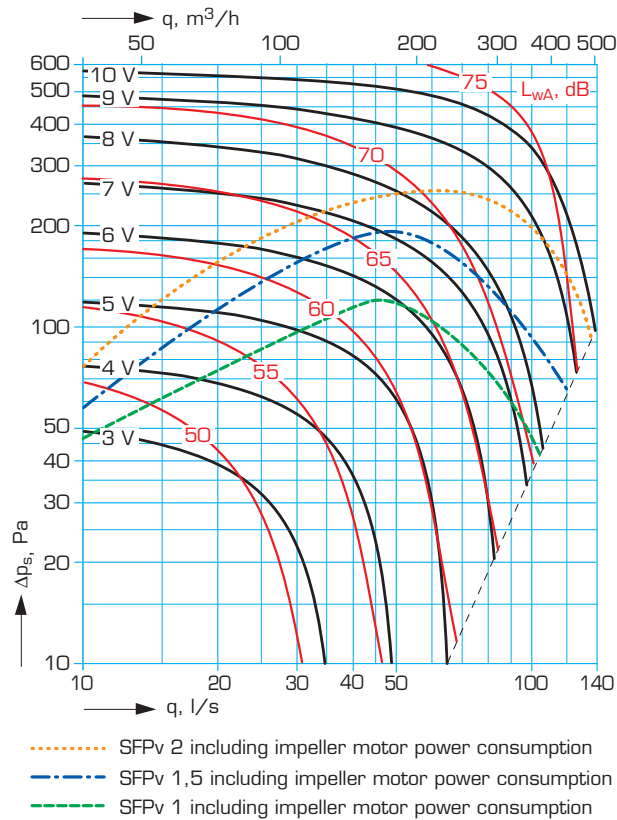


Diagram 5. a) Supply air fan, setting control voltage (V)  
b) Sound to duct,  $L_{WA}$ , for supply air fan

## Sound power level in octave bands to duct

The sound power level  $L_w$  (dB) in octave bands to supply and exhaust air duct is obtained by adding the correction factor as per the table below (including sign) to the sound power level  $L_{wA}$  reading in the fan diagram above.

Sound path	Octave bands, mid-frequency, Hz							
	63	125	250	500	1k	2k	4k	8k
Supply air/ Exhaust air, dB	8	6	-1	-2	-5	-11	-15	-20

## Extract air fan

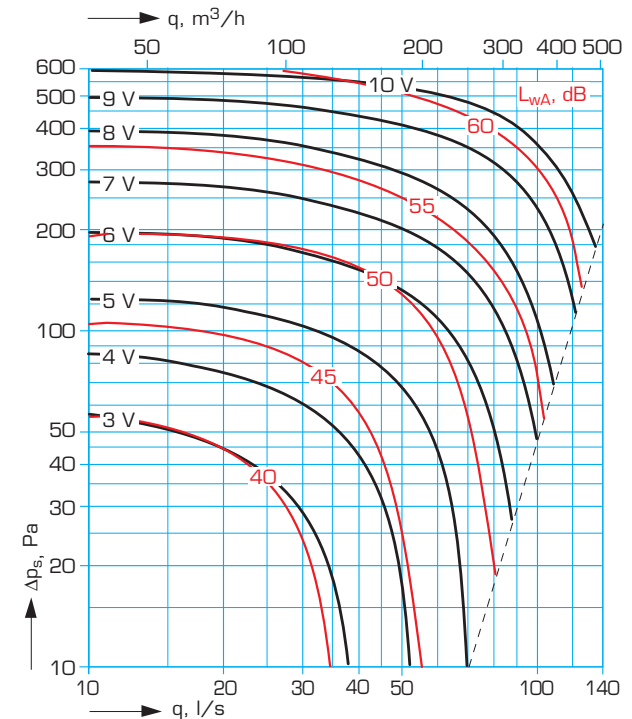


Diagram 6. a) Extract air fan, setting control voltage (V)  
b) Sound to duct  $L_{WA}$  (dB) for extract air fan

## Sound power level in octave bands to duct and room

The sound power level  $L_w$  (dB) in octave bands to extract and outdoor air duct and to room is obtained by adding the correction factor as per the table below (including sign) to the sound power level  $L_{wA}$  reading in the fan diagram above.

Sound path	Octave bands, mid-frequency, Hz							
	63	125	250	500	1k	2k	4k	8k
Extract air/ Outdoor air, dB	13	7	4	-2	-9	-14	-28	-36
To room, dB	7	11	1	-15	-24	-33	-38	-36

Sound to room =  $L_{wA}$  from the extract air fan diagram minus 7 dB gives the sound pressure level,  $L_{p10A}$  dB(A) at 10  $m^2$  room absorption

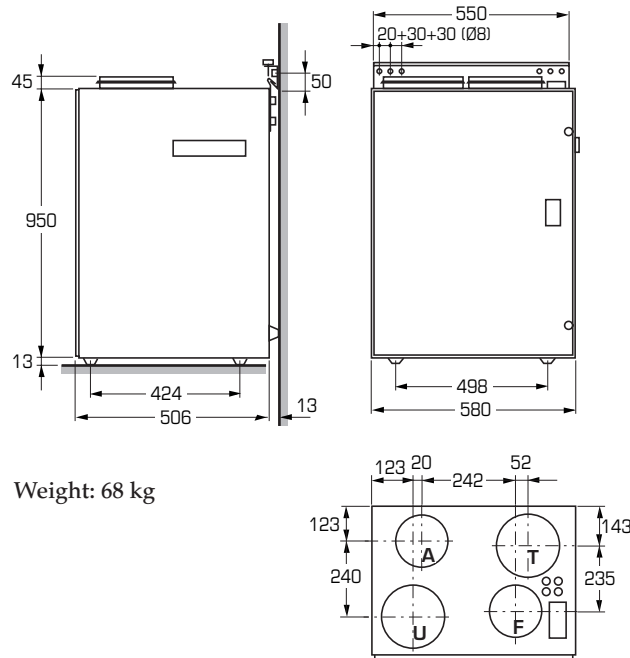
## Sound level

The sound level  $L_{p10A}$  (dB) is shown for a room with a 10  $m^2$  sound absorption area. To obtain the actual sound level, add the dB(A) values below (including sign):

Room area $m^2$	Normally furnished room	Heavily furnished room, e.g. kitchen
5	+2 dB(A)	+7 dB(A)
10	0 dB(A)	+4 dB(A)
15	-1 dB(A)	+1 dB(A)

# Dimensions and weight

## Dimensions and weight



Weight: 68 kg

Connection	T	F	U	A
Diameter	200	160 <sup>1)</sup>	200	160 <sup>1)</sup>
Connection	Supply air	Extract air	Outdoor air	Exhaust air

<sup>1)</sup> Increased to Ø200 mm as soon as the space allows.

# Product code, optional extras, accessories

## Product code

Heat recovery unit **RDAS-a-b-c-d-e-f-g**

Size (a) \_\_\_\_\_  
1

Battery (b) \_\_\_\_\_  
0 = without  
1 = post-heating, El. (1000 W)  
2 = post-heating, El. + pre-heating, El. (2x1000 W)

Moisture control (c) \_\_\_\_\_  
0 = without  
1 = with

Filter (d) \_\_\_\_\_  
2 = supply air M5 compact/  
extract air G4 compact

Air quality control (e) \_\_\_\_\_  
0 = without  
6 = CO<sub>2</sub>

Ethernet connection (f) \_\_\_\_\_  
0 = without  
5 = with

Generation (g) \_\_\_\_\_  
1

## Accessories

**Control panel** **RDKZ-41-b**  
(required for adjustment of fans)

Version (b) \_\_\_\_\_  
1 = Curo® Basic (membrane panel)  
3 = Curo® Touch (touch panel)

**Extension cable for control panel** **RDKZ-43-b-cc-d**

Version (b) \_\_\_\_\_  
1 = 6-pole flat cable

Length (cc) \_\_\_\_\_  
02 = 2 metres  
10 = 10 metres  
25 = 25 metres

Generation (d) \_\_\_\_\_  
1

**Filter set M5 / G4 (2+2)** **RDAZ-10**

**Dual wall vent** **ABRZ-01-1**

**Silencer** **BDER-30-020-090**

## Optional extras in product code

### Moisture control

This function automatically limits the rotary heat exchanger's moisture recovery at high levels of humidity in the indoor air.

This function can also be ordered retrospectively to supplement the unit, using product code: RDKZ-51-1.

### CO<sub>2</sub> control

The function regulates to a pre-set setpoint value. Fan speed is automatically adjusted to achieve the desired CO<sub>2</sub> level.

NOTE! CO<sub>2</sub> control requires control panel Curo® Touch.

This function can also be ordered retrospectively to supplement the unit, using product code: RDKZ-52-6.

### Ethernet connection

This function can be used to connect the unit to an existing network. RDAS has a built-in Webserver, which makes it possible to read and change certain parameters via a web browser.

The connection can also be used for connection to a superior system via Modbus TCP/IP.

This function can also be ordered retrospectively to supplement the unit, using product code: RDKZ-53-5.

## Accessories

### Control panel Curo® Basic - RDKZ-41-1

External control panel for wall mounting. The fan speed can be set to three operating modes: AWAY, HOME and FORCED. The panel also shows filter alarm.

### Control panel Curo® Touch - RDKZ-41-3

External control panel for wall mounting. The control panel is used to adjust fan speeds, CO<sub>2</sub> control and operating speeds which are shown in plaintext. The control panel also shows alarm, etc.

NOTE! Control panel is required for adjustment of fans.

### Dual wall vent ABRZ-01-1

Wall mounted external wall vent for outdoor air and exhaust air. The vent, which is made from black, plastic-coated steel, prevents air leakage between outdoor air and exhaust air.

### Silencer BDER-30

Silencer for duct diameter 200 mm.

L x Dy = 900 x Ø300.

Sound attenuation at	mid-frequency, Hz							
	63	125	250	500	1k	2k	4k	8k
BDER-30-020-090	2	7	13	24	31	44	31	20

