

Heat recovery unit RDKS



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.

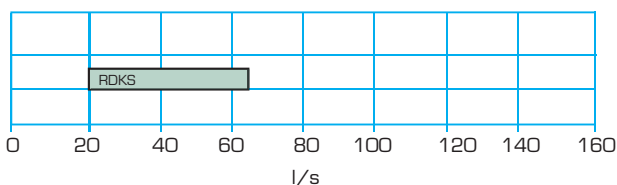
The RDKS unit is equipped with the Fläkt Woods control system Curo®, supplemented by a graphic control panel Curo® Touch or a simpler membrane panel Curo® Basic.

The unit is primarily intended for housing units and smaller commercial premises, and should be located in a warm space. It does not require draining, which is an advantage, particularly when replacing older units. RDKS, which can be supplied in a right-hand or left-hand design, has all connections at the top and is designed to be mounted on a wall.

As the unit is located in a kitchen it is teamed with a cooker hood, CPDJ or CPTJ. The cooker hood has a forced air damper which opens during cooking. Basic flow in the kitchen is provided using a separate exhaust air valve. RDKS is delivered with 2 m connection cable for control panel.

Energy savings

RDKS is an energy-efficient heat recovery unit which substantially reduces energy consumption. Savings are achieved because the fans are driven by modern, high-efficiency EC-motors where measurements point to an energy consumption of just 50% - 60% of the corresponding figure for conventional AC motors. In addition, RDKS is equipped with a rotary heat exchanger with a temperature efficiency of up to 83%.



Product facts

- Efficiency up to 83%
- Automatic limit on moisture recovery
- Variable speed rotary heat exchanger
- Supply and exhaust air flows 20 - 65 l/s
- Recommended for residential areas of up to 155 m²
- Filter up to class F7
- High-efficiency EC motors
- Individually adjustable fans
- Does not require draining
- Easy to install
- Easy to service
- Graphic control panel Curo® Touch (optional)
- Modbus communication

VVS AMA Standard code

QAB

Product code example:

RDKS-1-1-1-2-0-0-1

Heat recovery unit RDKS with post-heating, moisture control and standard filter.

Description, materials, technical data

Casing

The outer and inner casing is made of galvanised steel with an intermediate layer of 15 mm expanded polystyrene insulation. Screws are used to lock the unit door.

Fans

Fans are driven by very quiet and energy-efficient EC motors. These are easy to remove for service and maintenance. The speed of the fans can be adjusted steplessly independently of each other.

Heat exchanger

The heat exchanger is a rotary heat exchanger made of aluminium and it has a temperature efficiency of up to 83%. It 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 is easy to remove for cleaning. In systems with a unit in the kitchen, the air from the cooker hood bypasses the heat exchanger to avoid transfer of odours.

Pre-heater and Post-Heater

The unit has space for built-in electric pre-heater and post-heater. In areas where the design external temperature (DUT5) is lower than -25°C the unit should be supplemented with a pre-heater. The pre-heater is controlled by the external temperature. The unit post-heater controls the supply air temperature. The unit can easily be fitted with a pre-heater and post-heater retrospectively.

Filter

The unit is fitted with class M5/G3 filters as standard. Filters up to class F7 are available as accessories.

Sound

The sound power level L_w in octave bands to duct is calculated by adding the correction factor (including relevant sign) to the sound pressure level L_{wA} reading in diagram 1.

Sound path - correction, dB	Octave bands, mid-frequency Hz							
	63	125	250	500	1000	2000	4000	8000
Supply air & extract air	+7	+8	+3	-5	-6	-11	-19	-25
Exhaust air & outdoor air	-2	-6	-7	-19	-26	-40	-40	-40
Surroundings	+8	+12	+7	+1	-2	-13	-18	-19

The sound pressure level L_{p10A} is shown for a room with a 10 m^2 sound absorption area. To obtain the real sound level, the following dB(A) values (including signs) are added to the reading from the diagram.

Room area	Normally furnished room	Heavily furnished room
5 m^2	+2 dB(A)	+7 dB(A)
10 m^2	0 dB(A)	+4 dB(A)
15 m^2	-1 dB(A)	+1 dB(A)

Supply air fan

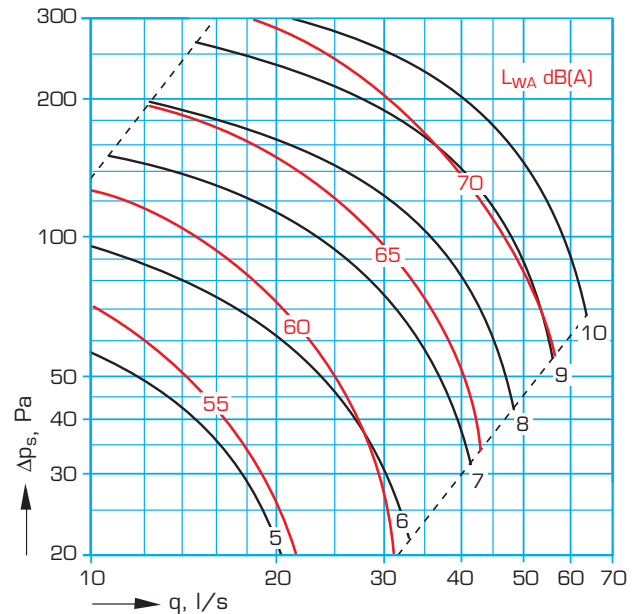


Diagram 1. a) Supply air fan, setting potentiometer (V)
b) Sound to duct, L_{wA} , for supply air fan
c) Filter M5

Exhaust air fan

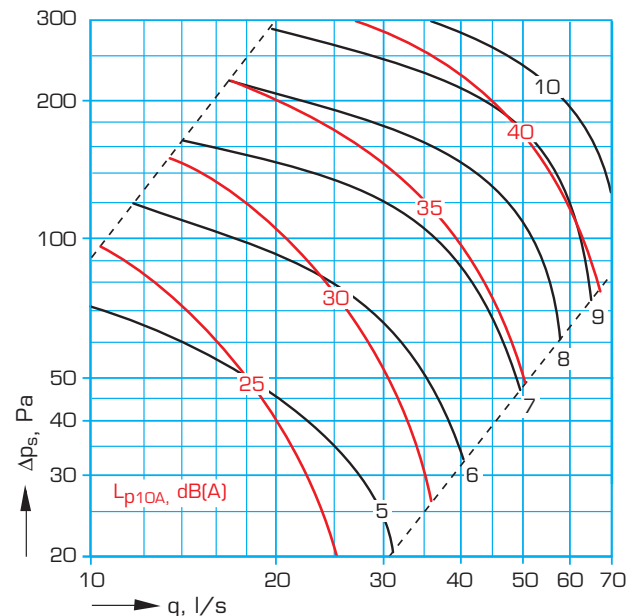
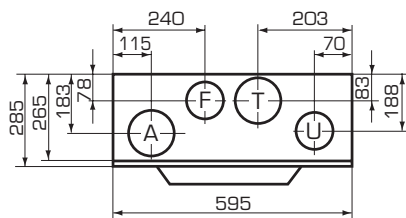
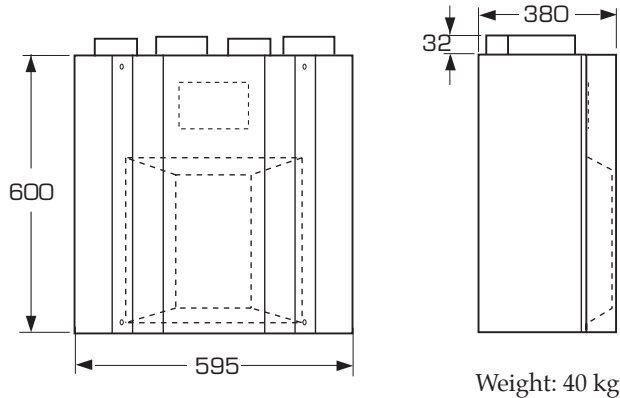


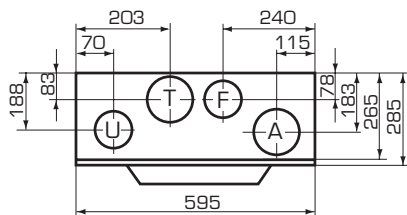
Diagram 2. a) Exhaust air fan, setting potentiometer (V)
b) Sound to kitchen, L_{p10A} , from unit with closed forced air damper in the cooker hood
c) Filter G3
d) If RDKS is installed between two kitchen cabinets together with a front door, the sound level to the surrounding area is reduced by 1 - 2 dB.

Dimensions and weight, electrical data, control equipment

Dimensions and weight



RDKS-1
Outdoor air right, supply air right



RDKS-2
Outdoor air left, supply air left

Connection (female)	T	F	U	A
Diameter	125	100	100	125
	Supply air	Exhaust air ¹⁾	Outdoor air ¹⁾	Extract air

¹⁾ Increased to Ø125 as soon as the space allows.

Electrical data

Voltage: 230V, single phase 50 Hz.

Code	Fan motors Rated output, W	Preheater electric, W	Afterheater electric, W	Rated output electric, W ¹⁾	Rated output w cooker hood
RDKS	2 x 83	500	500	1170	1210

¹⁾ Rated output applies when both preheater and afterheater are installed.

Packaging

The unit is delivered in a cardboard box. Mounting brackets for fixing the unit to a wall, as well as installation, operation and maintenance instructions are included.

Control equipment

The unit is equipped with an electronic control unit, which is located behind the protective panel and, among other things, controls the operation of the fans, the rotary heat exchanger, and any electric heaters.

Fan control

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

- AWAY is used when nobody is at home for a longer period in order to save energy
- HOME is used for normal ventilation flow
- FORCED is used when there is a greater need for ventilation (it will automatically revert after 120 minutes).

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 controls the rotary heat exchanger and any post-heating devices to maintain the set temperature.

The supply air temperature is adjusted towards the desired setpoint value in two steps. First, using energy recovery from the rotary heat exchanger, and, if this is not enough, using the post-heater. The electric post-heater is only activated if the rotary heat exchanger is operating.

During cold periods, when frost may form in the impeller, the control unit takes care of defrosting. This occurs when the external temperature falls below -10°C .

Cooling recovery

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

Moisture control (optional)

The function will automatically limit the rotary heat exchanger moisture recovery at high levels of humidity in the indoor air. Humidity control can also be ordered in retrospect for completion, with the product code: RDKZ-51-1.

Ethernet connection (optional)

The Ethernet connection can be used to connect the unit to an existing network. RDKS has a built-in Webserver which makes it possible to "surf" into the unit and read and change certain values. For instance, fan speeds and temperatures.

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

Alarm

The control panel (accessory) has an alarm indicator. This indicates when it is time to change the filter.

Product code, accessories

Product code

Heat recovery unit with rotary heat exchanger

RDKS-a-b-c-d-e-f-g

Connection (a)

- 1 = Outdoor air right, supply air right
- 2 = Outdoor air left, supply air left

Electric battery (b)

- 0 = Without
- 1 = Post-Heater only
- 2 = Pre-Heater and Post-Heater

Moisture control (c)

- 0 = Without
- 1 = With

Filter Supply air / Exhaust air (d)

- 2 = M5 bag filter / G3 filter pad

Air quality control (e)

- 0 = Without

Ethernet connection (f)

- 0 = Without
- 5 = With

Generation (g)

- 1

Accessories

Front cover

RDKZ-14-b-c-d-e

Material (b)

- 3 = White lacquer
- 4 = Stainless

Extension unit towards the ceiling (c)

- 0 = Without
- 1 = With (+300 mm)

Height (d)

- 6 = 600
- 7 = 700

Generation (e)

- 1

Extension cable for control panel

RDKZ-43-b-cc-d

Version (b)

- 1 = 6-pole flat cable

Length (cc)

- 10 = 10 metres
- 25 = 25 metres

Generation (d)

- 1

Control panel Curo® Basic

RDKZ-41-1

Control panel Curo® Touch

RDKZ-41-3

Filter G3 filter pad

RDKG-99-14

Filter M5 bag filter

RDKG-99-15

Filter F7 bag filter

RDKG-99-16

Electric battery for adding retrospectively (suitable both as a pre-heater or post-heater)

RDKR-99-03

Cooker hood for RDKS-1-b-c-d-e-f-1

CPDJ-b-cc-d-1-f

Cooker hood for RDKS-2-b-c-d-e-f-1

CPDJ-b-cc-d-2-f

Cooker hood for RDKS-1-b-c-d-e-f-1

CPTJ-a-bb-c-1-e

Cooker hood for RDKS-2-b-c-d-e-f-1

CPTJ-a-bb-c-2-e

Combined hood

RDKZ-26-000

Air intake

BSDB-20-012

Ventilation hood

CBAE-12-111

Duct insulation ø 100

RDKZ-45-010

Duct insulation ø 125

RDKZ-45-012

Silencer

BDER-70-012-100

Moisture control

RDKZ-51-1

Ethernet connection

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, CO₂ 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 RDKZ-26

The dual wall vent is intended to take in outdoor air and transport away exhaust air from heat recovery units fitted in residential buildings. It is installed on an external wall. The outdoor air is taken in from below, while the exhaust air is blown straight out. Both openings are fitted with netting. The netting across the exhaust air opening is easy to remove for inspection and cleaning if necessary.

Air intake BSDB-20

Is intended for fitting on an external wall. The intake consists of a box in which an external wall grille is fitted as rain cover. It therefore does not need to be in a location protected from rain.

Accessories, cont

Ventilation hood CBAE-12

Is intended for the exhaust air from the heat recovery unit. It should be connected using metal ducting or a flexible steel hose.

Duct insulation RDKZ-45

Is intended for thermal insulation of ducts which convey cold air through heated spaces. The duct insulation comprises fire-proof polyethylene cellular plastic. The insulation thickness is 15 mm and the length is 1 metre. Duct insulation is fitted from the end of the duct.

Silencer BDER-70

Rectangular silencer for duct diameter 125 mm.
L x W x H = 1000 x 265 x 190.

Sound attenuation at	Mid-frequency, Hz							
	63	125	250	500	1000	2000	4000	8000
BDER-70-012-100	19	18	26	43	51	47	48	43

