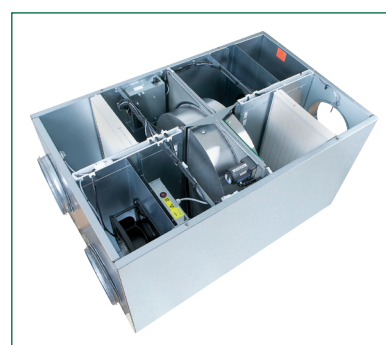
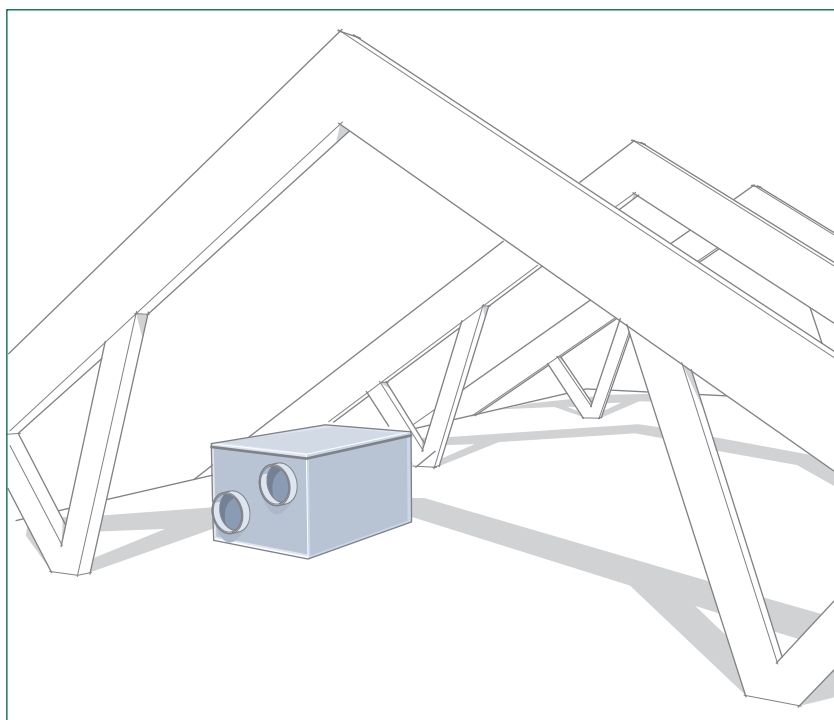


Heat recovery unit RDAF



Heat recovery units RDAF Mini, Midi and Maxi are based on our RDAE unit and develop this further. This series of units is designed to be energy efficient and have low SFP_v values.

The units have a rotary heat exchanger with stepless speed control, which results in very precise temperature control. 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 RDAF units are equipped with the Fläkt Woods control system Curo[®], supplemented by a graphic control panel Curo[®] Touch or a simpler membrane panel Curo[®] Basic.

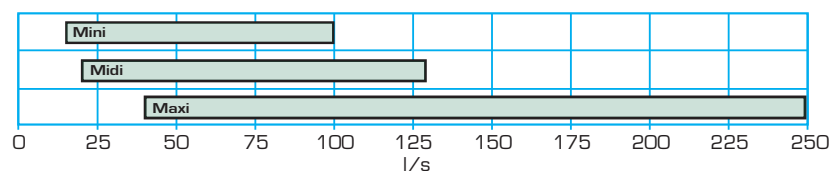
The units are primarily intended for detached houses and smaller premises and should be located in cold spaces, for instance in an attic. The connections are placed at the gable ends and the units do not need draining, which is an advantage, especially when replacing an older unit. RDAF is delivered with 2 m connection cable for control panel.

Energy savings

RDAF is an energy efficient heat recovery unit with a low SFP_v value, which ensures low energy consumption. To achieve this, it uses plug fans with B wheels run by highly efficient EC motors. Measurements show that the energy consumption of these motors is just 50% - 60% of the corresponding figure for conventional AC motors.

RDAF is equipped with a rotary heat exchanger with a temperature efficiency of up to 86% (conditions according to EN 308).

Flow diagram



Product facts

- Three sizes
- Temperature efficiency, up to 86%
- Variable speed rotary heat exchanger
- Low SFP_v value
- Plug fans with highly efficient EC motors
- Individually adjustable fans
- Recommended for residential areas of up to: Mini, 200 m² (75 l/s), Midi, 270 m² (100 l/s), Maxi, 500 m² (180 l/s)
- Filter, class F7/M5
- Does not require draining
- Easy to install
- Easy to service
- Automatic limit on moisture recovery (optional)
- Graphic control panel Curo[®] Touch (optional)
- Modbus communication

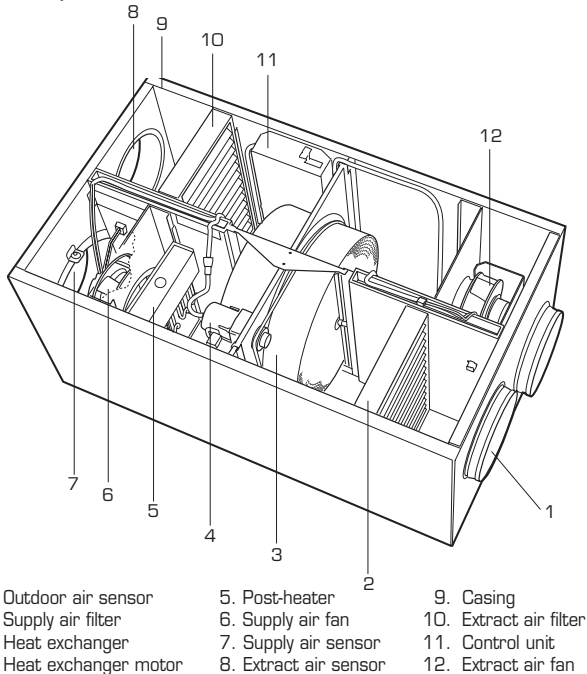
Product code example

RDAF-2-1-1-2-0-5-1

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

Description, electrical data, control equipment

Main parts of the unit



Casing

The outer casing for the Mini and Midi is made from white lacquered steel, the Maxi casing is made from galvanized steel. The inner casing is made from galvanized steel and in between there is 25 mm of mineral wool insulation. The unit door is locked with a bolt.

Fans

The fans are fitted with B wheels and are operated by 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 unit is equipped with a rotary heat exchanger made of aluminium, which has a temperature efficiency of up to 86%. 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.

| RDAF | Air flow, l/s | | | | | | | |
|------|---------------------------|----|------|-----|-----|------|------|------|
| | 25 | 50 | 75 | 100 | 125 | 150 | 175 | 200 |
| Mini | 86 | 84 | 82 | 80 | - | - | - | - |
| Midi | - | 85 | 83.5 | 82 | 80 | - | - | - |
| Maxi | - | - | 86 | 85 | 84 | 83.3 | 82.5 | 81.5 |
| | Temperature efficiency, % | | | | | | | |

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

Post-heater

The unit can be supplemented with an electric post-heater

Filter

The unit is fitted with class F7 filters for the supply air and M5 for the extract air as standard.

Electrical data

Voltage: 230V, single phase 50 Hz.

| Size | Fan motors ¹⁾ Output, W | Post-heater Output, W | Rated output W |
|------|---------------------------------------|--------------------------|-------------------|
| Mini | 166 | 1000 | 1186 |
| Midi | 192 | 1000 | 1212 |
| Maxi | 340 | 1000 | 1360 |

¹⁾ Refers to two fan motors

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 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 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 regulates the rotary heat exchanger and any post-heater 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 post-heater is 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 °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 a corrugated fibre-board cover for protection. Operation & Maintenance and Installation Instructions are included.

Mini - air flow, pressure drop, SFPv, sound data

Mini supply air fan

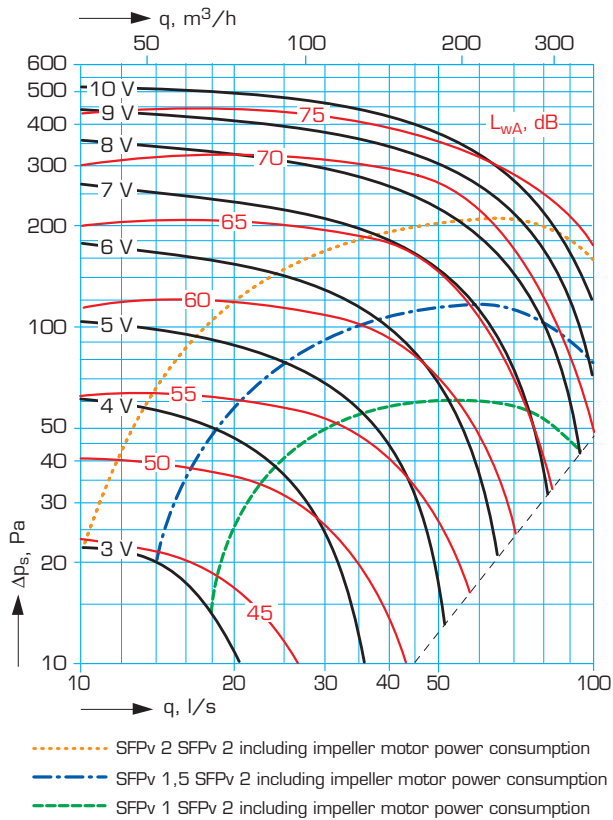


Diagram 1. a) Supply air fan, setting control voltage (V)
b) Sound to duct, L_{wA} , for supply air fan

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 | -5 | 0 | 5 | -3 | -9 | -10 | -15 | -21 |

Mini extract air fan

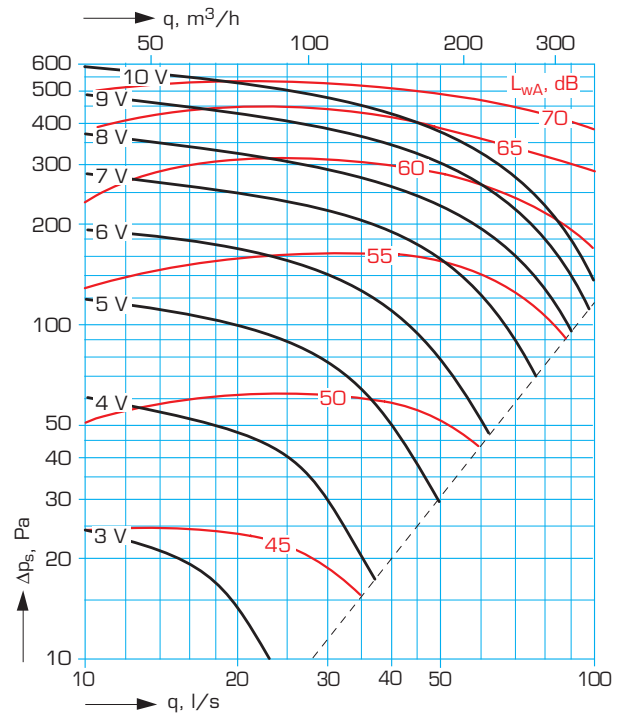


Diagram 2. a) Extract air fan, setting control voltage (V)
b) Sound to duct L_{wA} (dB) for extract air fan

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 | -5 | 8 | 7 | -5 | -14 | -14 | -24 | -30 |
| To room, dB | -4 | 3 | 7 | -13 | -19 | -19 | -25 | -24 |

Sound to room = L_{wA} from the extract air fan diagram minus 14 dB gives the sound pressure level, L_{p10A} dB(A) at 10 m² room absorption

Sound level

The sound level L_{p10A} (dB) is shown for a room with a 10 m² 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) |

Midi - air flow, pressure drop, SFPv, sound data

Midi supply air fan

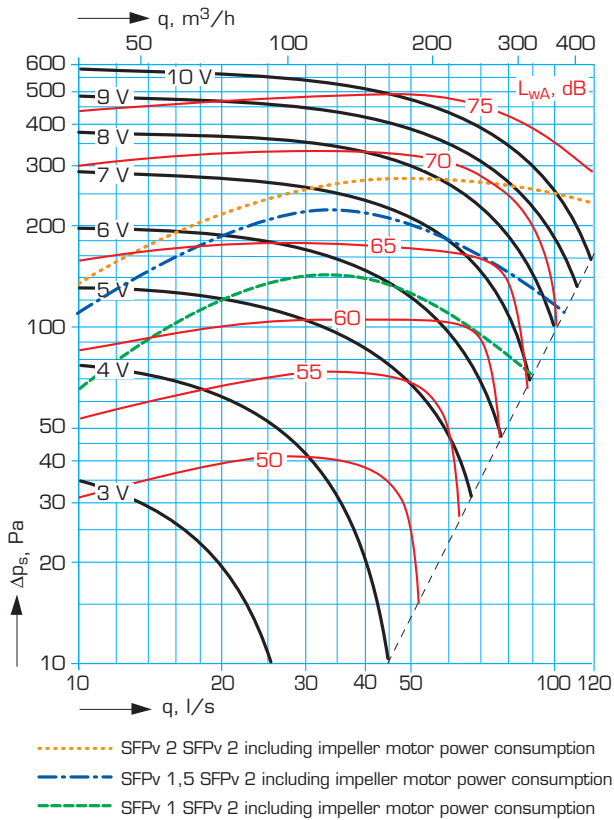


Diagram 3. a) Supply air fan, setting control voltage (V)
b) Sound to duct, L_{wA} , for supply air fan

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 | -5 | 0 | 5 | -3 | -9 | -10 | -15 | -21 |

Midi extract air fan

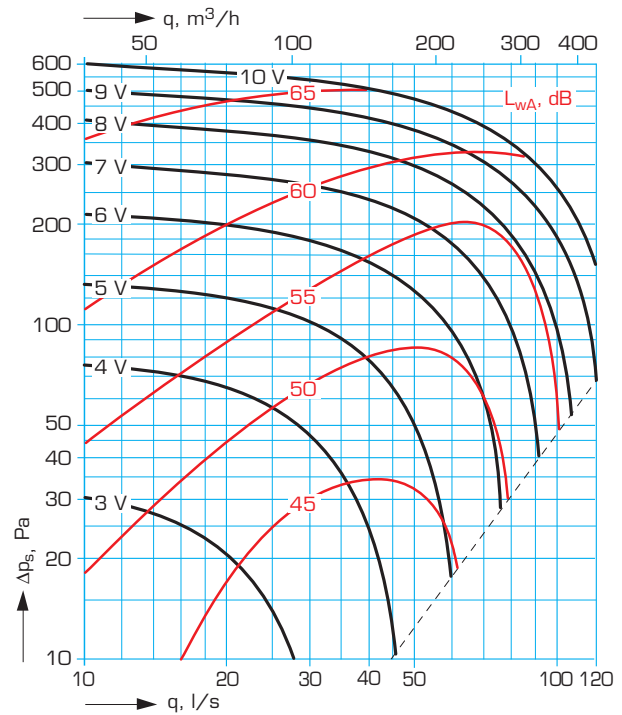


Diagram 4. a) Extract air fan, setting control voltage (V)
b) Sound to duct L_{wA} (dB) for extract air fan

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 | -3 | 8 | 7 | -6 | -12 | -14 | -21 | -32 |
| To room, dB | -10 | -3 | 1 | -19 | -25 | -25 | -31 | -30 |

Sound to room = L_{wA} from the extract air fan diagram minus 11 dB gives the sound pressure level, L_{p10A} dB(A) at 10 m² room absorption

Sound level

The sound level L_{p10A} (dB) is shown for a room with a 10 m² 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) |

Maxi - air flow, pressure drop, SFPv, sound data

Maxi supply air fan

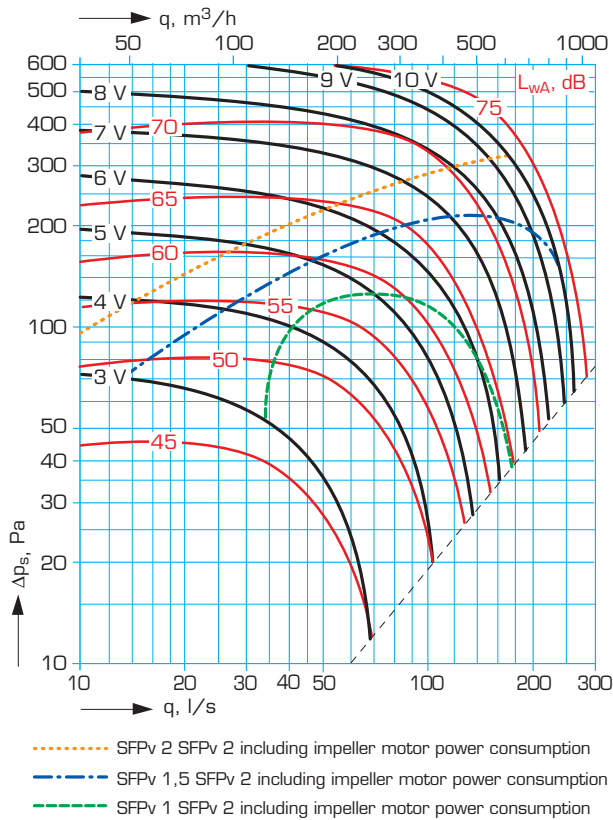


Diagram 5. a) Supply air fan, setting control voltage (V)
b) Sound to duct, L_{wA} , for supply air fan

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 | -9 | -5 | 3 | -10 | -7 | -5 | -12 | -11 |

Maxi extract air fan

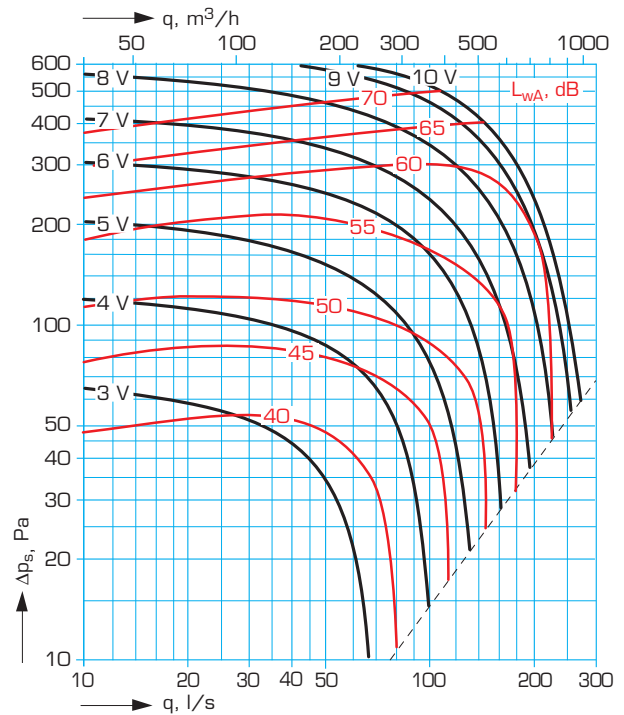


Diagram 6. a) Extract air fan, setting control voltage (V)
b) Sound to duct L_{wA} (dB) for extract air fan

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 | -4 | 2 | 5 | -6 | -7 | -10 | -16 | -21 |
| To room, dB | -4 | 3 | 7 | -13 | -19 | -19 | -25 | -24 |

Sound to room = L_{wA} from the extract air fan diagram minus 5 dB gives the sound pressure level, L_{p10A} dB(A) at 10 m² room absorption

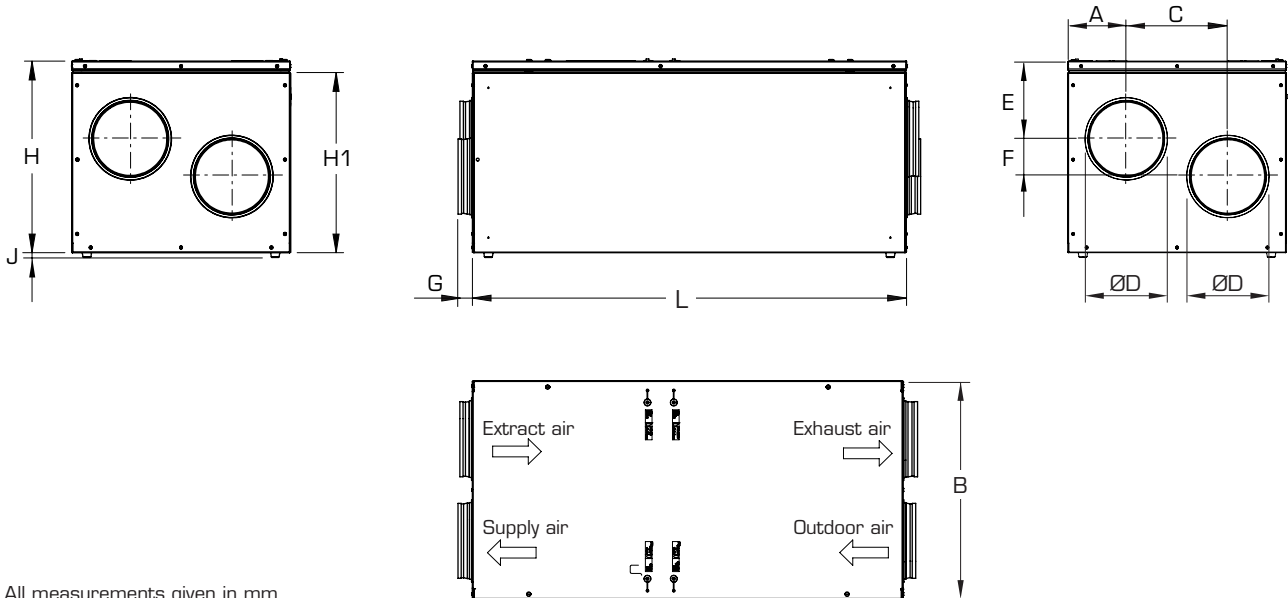
Sound level

The sound level L_{p10A} (dB) is shown for a room with a 10 m² 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



All measurements given in mm.

| Size | L | B | H | H1 | A | C | ØD | E | F | G | J | Weight, kg |
|------|------|-----|-----|-----|-----|-----|-----|-----|-----|----|----|------------|
| Mini | 950 | 540 | 475 | 442 | 150 | 240 | 160 | 190 | 100 | 38 | 10 | 57 |
| Midi | 1000 | 580 | 510 | 480 | 155 | 270 | 200 | 207 | 100 | 37 | 10 | 67 |
| Maxi | 1200 | 750 | 685 | 652 | 198 | 355 | 250 | 247 | 195 | 43 | 10 | 109 |

Product code, optional extras, accessories

Product code

| | |
|---|---------------------------|
| Heat recovery unit | RDAF-a-b-c-d-e-f-g |
| Size (a) _____ | |
| 1 = Mini | |
| 2 = Midi | |
| 3 = Maxi | |
| Battery (b) _____ | |
| 0 = without | |
| 1 = post-heater, electric, 1000 W | |
| Moisture control (c) _____ | |
| 0 = without | |
| 1 = with | |
| Filter supply air/extract air (d) _____ | |
| 2 = F7 compact/M5 compact | |
| Air quality control (e) _____ | |
| 0 = without | |
| 6 = CO ₂ | |
| 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, mini F7 / M5 (1+1) **RDAZ-21-1**

Filter set, midi F7 / M5 (1+1) **RDAZ-12**

Filter set, maxi F7 / M5 (1+1) **RDAZ-21-3**

Dual wall vent, mini **RDAZ-22-1**

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

Dual wall vent, maxi **ABRZ-01-2**

Silencer, mini **BDER-30-016-090**

Silencer, midi **BDER-30-020-090**

Silencer, maxi **BDER-30-025-090**

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.

CO₂ control

The function regulates to a pre-set setpoint value. Fan speed is automatically adjusted to achieve the desired CO₂ level. NOTE! CO₂ 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. RDAF 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, 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 RDAZ-22 or ABRZ-01

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, insulated with 50 mm rockwool.

Length 900 mm.

| Size | Duct diameter | Sound attenuation at mid-frequency, Hz | | | | | | | |
|------|---------------|--|-----|-----|-----|----|----|----|----|
| | | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
| Mini | Ø160 mm | 2 | 3 | 11 | 29 | 34 | 41 | 27 | 11 |
| Midi | Ø200 mm | 2 | 7 | 13 | 24 | 31 | 44 | 31 | 20 |
| Maxi | Ø250 mm | 2 | 2 | 8 | 19 | 25 | 32 | 12 | 6 |

