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AIRFLOW™

DUPLEXVENT RA3, RB3

USER'S MANUAL

(Please leave this manual with unit when installed)

AIRFLOW™

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IMPORTANT NOTICES:

- Heat recovery DUPLEXVENT ventilation units are intended for comfort ventilation in a basic environment with relative humidity up to 90%. Should the appliance be used for other purposes or not operated properly in compliance with instructions specified in the User's Manual, the manufacturer has no liability for resulting damage.
- The appliance may only be operated by adults who have made themselves familiar with the User's Manual."
- The user must not tamper with or modify any part of the appliance, particularly its electrical wiring!!
- Only professional service technicians with relevant qualifications may perform equipment repairs. Unprofessional repairs are very risky and may result in a loss of warranty.
- Before opening the door of the appliance for cleaning, filter replacement or general maintenance, always make sure that it is disconnected from power supply and cannot be re-connected by another person.
- To prevent injury caused by the fan wheel, ductwork at least 2 metres long must always be connected to the fan discharge side. The ductwork must be fastened in such a way so that it cannot be removed without using tools.
- The appliance may only be installed in areas with temperatures above 15℃ with relative humidity 60% at 20℃.
- If the appliance has been out of operation for a long period of time, extra care must be taken during its re-commissioning.
- The appliance designed for a basic environment may be operated within the temperature range of ventilation air between -25℃ and 45℃ and relative air humidity up to 90%, in an environment where there is no risk of fire or an explosion of flammable gases and fumes containing organic solvents or aggressive substances that might damage the mechanical parts of the unit. If there is a danger of such gases and fumes temporarily entering the duct (e.g. floor bonding, painting), the appliance must be switched off sufficiently in advance.
- Electrical installation, commissioning and adjustment of the appliance may only be carried out by persons with appropriate electrotechnical qualifications.
- Before installing the appliance and putting it into operation, carefully read the User's Manual!!
- The appliance and all accessories must be installed and used in compliance with the project, the manufacturer's technical conditions and applicable legal regulations and technical standards in effect.
- The appliance may not be installed or operated in an aggressive environment that could adversely affect external and internal mechanical components.
- Before putting the appliance into permanent operation, an initial inspection report of the power supply for the appliance must be provided.
- In the event of a failure, the appliance must be disconnected from power supply as soon as possible!
- During the handling and installation of the appliance comply with all principles of safe work (including the safety of work at height and work with suspended loads) and use appropriate work and protective equipment.
- During installation avoid damaging or deforming the appliance's case.
- An appliance fitted with a hot water air heater (optional accessory) must be permanently connected to power supply to provide for the anti-freeze protection of the hot water air heater. In case of a prolonged power outage the heating medium must be drained from the hot water air heater. We recommend draining the heating medium from the heater by pressurized air instead of gravity flow!!

The manufacturer cannot be held liable for damages resulting from the unprofessional installation of the appliance in disagreement with the installation manual and common practices in installing HVAC units and control systems

Product label

Hot air heating and ventilation unit with heat recovery

1

2 **7**

3 **8**

4 **9**

5

6 **10**

The appliance may only be repaired by a service technician..

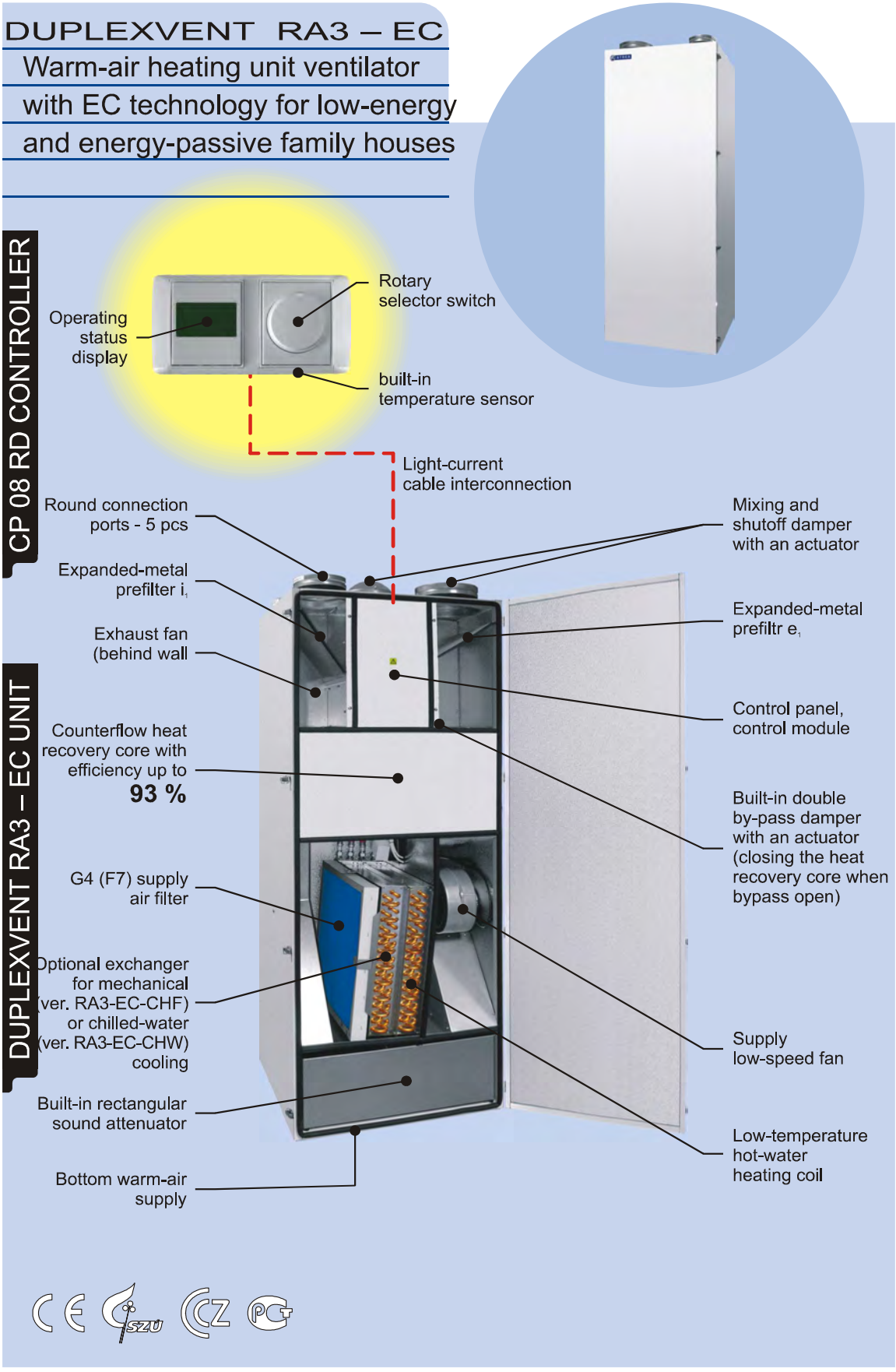
The appliance must be disconnected from power supply using the main switch before cleaning or repair.

1	Unit type and motor size
	(DUPLEXVENT RA3 450/450) (DUPLEXVENT RB3_EC 550/450)
2	Maximum air re-circulation
3	Maximum air ventilation
4	Maximum power input
5	Weight of the hot air heating unit
6	Year of production
7	Heat recovery efficiency
8	Voltage
9	Heat exchanger type
10	Serial No.

Content

A) General description

1. Description of main parts

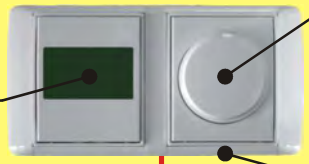


DUPLEXVENT RB3-EC

Warm-air heating and ventilation units for low-energy residential buildings and passive homes

Figure -Basic DUPLEXVENT RB3-EC unit

CP O8 RD CONTROLLER



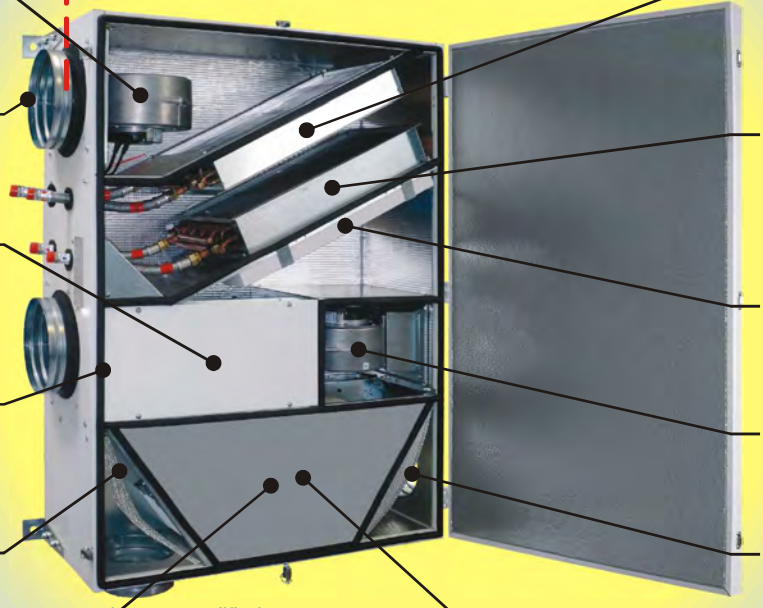
Operation status display

Rotary controller

Integrated temperature sensor

Light-current cable line

DUPLEXVENT RB3-EC UNIT



Low-speed recirculating EC fan

Circular connecting ports (5)

Connecting terminal board control module

Mixing and shut-off damper with servo drive under a cover

Expanded metal mesh pre-filter i_1

Low-temperature hot- water- air-heater

Optional evaporator for mechanical cooling (version RB3-EC-CHF) or water-based cooling (version RB3-EC-CHW)

Re-circulation and supply air filter (G4,F7)

Exhaust air EC fan

Expanded metal mesh pre-filter e_1

Figure – Modified DUPLEXVENT RB3-EC-CHW (with a water-based cooler)

Counter-flow heat recovery exchanger with efficiency up to **90%**

Integrated double bypass damper with servo drive (closes the heat recovery exchanger when the bypass opens)

B) Installation

1. Installation of the unit

The fitting of DUPLEXVENT R_3 hot air units is described in Appendix D.

DUPLEXVENT RA3 units:

A minimum required installation space, including HVAC duct connections and access for operating the unit:

- window version ..... 1,65x1,2x2,4 m

Minimum distances from building structures:

- in front of the unit ..... 0,9 m (*0,6 m)
- from the sides ..... 0,1 m

DUPLEXVENT RB3 units:

A minimum space required for installation including HVAC ducts and access for operators:

- ceiling-mounted version - installation space ..... 1.2 x 1.5 x 2.45 m
  - operation space ..... 1.2 x 1 m

Minimum distances from building structures:

- from sides with no outlet ports ..... 0.1 m
- from sides with outlet ports ..... 0.3 m

*Note: * the size of the utility room and minimum distances from building structures in front of the unit with a removable door without hinges.*

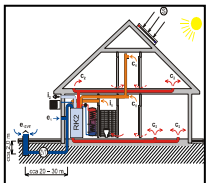
For more detailed descriptions of installation of the units see the following documents:

HVAC INSTALLATION
RECOMMENDED INSTALLATION DETAILS FOR HOT AIR HEATING
AND VENTILATION SYSTEMS

For a detailed description of connecting to a CH (heating section) system see the following document:

:

CH
GENERAL DIAGRAMS OF CONNECTING
VARIOUS HEATING
SOURCES TO DUPLEXVENT
RA3 HOT AIR UNITS

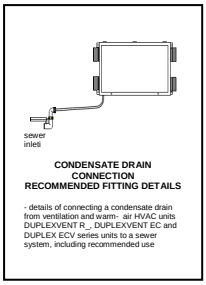


GENERAL DIAGRAM FOR CONNECTING VARIOUS HEAT SOURCES TO WARM-AIR UNITS DUPLEXVENT RB, RC, RK2 AND RDH

For the details of connecting a control system with DUPLEXVENT R_3 units see Appendix F.

For connecting condensate drain see Appendix G.

For more details on connecting condensate drain from the unit see the following document:



CONDENSATE DRAIN CONNECTION RECOMMENDED FITTING DETAILS

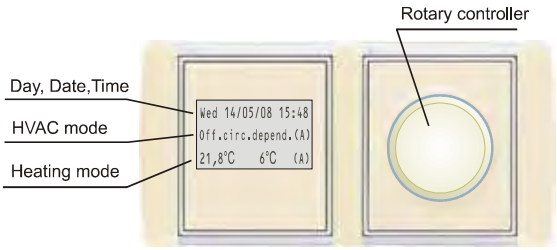
- details of connecting a condensate drain from ventilation and warm- air HVAC units DUPLEXVENT R_, DUPLEXVENT EC and DUPLEX ECV series units to a sewer system, including recommended use

CONNECTING CONDENSATE DRAIN
RECOMMENDED INSTALLATION DETAILS

2. Installation of CP 08 RD controller

For a detailed description of installing and operating a CP08RD incl. recommended operation mode settings see the following document:

CP-08 RD CONTROLLER
FOR DUPLEXVENT R_3 HVAC UNITS
The User's Manual is supplied with the controller.
The controller is installed in a twin-box set in the wall of the building



3. Commissioning

DUPLEXVENT R_3 units may only be put into operation by authorized service technician, who is required to fill out and hand over a signed "COMMISSIONING REPORT". A warranty for DUPLEXVENT R_3 units is provided on the basis of that report.

Spare parts, repairs

We recommend commissioning all repairs of the controllers, within or after their warranty period, to a professional servicing firm or trained service technician. Please contact the manufacturer for details regarding the nearest service point.

C) Functions

For the operation modes of DUPLEXVENT R_3 hot air units see Appendix E.

1. Basic functions

Recirculation air heating

Recirculation air is filtered inside the unit, heated in the hot water heat recovery exchanger and transported by means of a low-speed fan into the various diffusers in the rooms.
The integrated heating facility turns on when all the following conditions are met:

1) The unit is ON (medium or maximum performance level)
2) It is set to Heating Season (HS)
3) The room thermostat is ON - a request for heating from the CP 08 RD controller
4) Temperature behind the heater is lower than the maximum temperature set on the control module board (trimmer P1).

Heating itself starts depending on a heating source installed (a boiler, an auxiliary pump etc. are turned on).

Exhaust air extraction

It is intended for independent extraction from the toilet, bathroom and kitchen, i.e. areas where recirculation is not allowed. Extraction can be set manually (mode 1 or 2) or it starts automatically after lights in the toilet or bathroom are turned on or a command comes from the kitchen, regardless of the manual setting of the controller. Various options differ depending on the installation location - for information please contact the installation firm.

Starting with start-up delay and run-down times

To start extraction from the bathroom and toilet inputs D1, D2 and D3 with delay start-up and run-down times. These start-up delay and run-down times can be set within a range - 0-5 minutes for start-up (1 minute by default) and 1-10 for

shut-down (5 minutes by default). The setting can only be made by a person authorized by supplier - a service technician.
The ventilation run-down time is automatically reduced depending on outside temperature - the lower the outside temperature, the shorter the run-down time.

Immediate start-up without run-down

This option is used for starting via an external phase signal from the kitchen (input D4) or a room hygrostat (input D11).

Mixing damper

The unit's mixing damper is used to set the ratio between fresh ventilation and recirculation air. When the unit is turned off or the antifreeze protection facility is activated, it is shut down completely. It is controlled automatically following set modes 1 to 5. If the unit is continuously operated in recirculation mode 3, short-time ventilation starts at pre-set intervals to exchange air (a periodic ventilation start-up function).

Heat recovery exchanger

For more information on heat recovery exchangers see the technical data sheet of each unit.

Automatic bypass damper

The damper's function is to bypass supply air outside the heat recovery exchanger.

Filtration

The unit has a G4 class textile filter fitted on the supply side as a standard. Optionally a F7 class filter can be installed. Rough filters from expanded metal mesh are used for pre-filters.

2. Controlling the operation of DUPLEXVENT R_3 units

An RM module and an outside temperature sensor are integral parts of your HVAC unit. The system these components the system cannot be operated.

1. Control via a CP 08 RD controller - see the following document:

CP-08 RD CONTROLLER
User's Manual
FOR DUPLEXVENT R_3 HVAC UNITS
(supplied with the controller)

2. Control via a higher-ranking system:
   - for detailed documentation contact the manufacturer

3. External inputs:
   - external signals (switches in the bathroom, kitchen, toilet)
   - CO_2 sensors
   - A stop contact - when it is closed, the unit disables ventilation and only recirculation (and heating) are enabled

See the following document:

CONSTRUCTION READINESS
ELECTRICAL INSTALLATIONS FOR DUPLEXVENT RA3 HOT AIR UNITS (with a CP08 RD controller)

3. Problems and troubleshooting

Problem	Possible causes	Troubleshooting
Reduced ventilation capacity	Clogged air filters	Check filters and replace if necessary
	Clogged suction lamellas or dented air duct	Check air supply ducts and clean if necessary
Condensate builds up inside the unit	Blocked condensate drain line	Check the line, clean or replace if necessary
	A siphon is not installed or it is not big enough	The siphon must correspond with the picture in Chapter G
	The unit is not fitted horizontally	Adjust the position of the unit so that it is horizontal or sloping (depending on the location and type of the unit)
Insufficient heating	Air locked heat exchanger	Bleed

Problem	Possible causes	Troubleshooting
capacity of the heater	Thermostat fails to start	Inspect - we recommend using a professional service company
	Heat source fails to start	Inspect - we recommend using a professional service company
Different volumes of fresh and exhaust air	Incorrect damper setting	Adjust - we recommend using a professional service company
	Incorrect fan speed setting	Adjust - we recommend using a professional service company
After connecting the controller and power supply the unit fails to react	No voltage in the unit	Inspect the upstream circuit breaker and fuse disconnector. Contact a specialized electrical installation company.
	Incorrectly connected conductors	Check again whether all conductors have been properly connected. Check for the tightness of conductors in terminals (assign to service technician).
	Interrupted line	Check whether the line was not damaged (slit, broken etc.) when it was fitted to connect the ventilation unit and controller (assign to service technician).
	The unit was connected to power supply before the CP 08 RD controller was installed	Disconnect the unit from power supply, wait for 5 seconds and re-connect.

4. Maintenance

Replacing filter cloth or filter cassettes

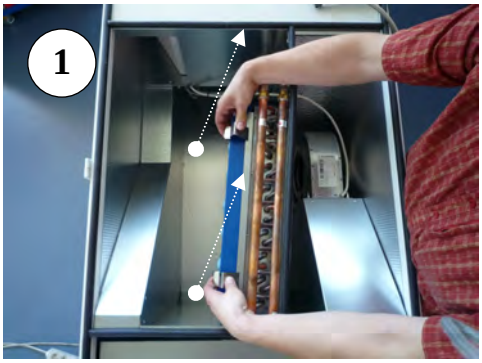
(the following procedure applies to DUPLEXVENT RK2 and RA3 units; filters in other units have different shapes and filters in DUPLEXVENT R_3 units are fixed in a different way)

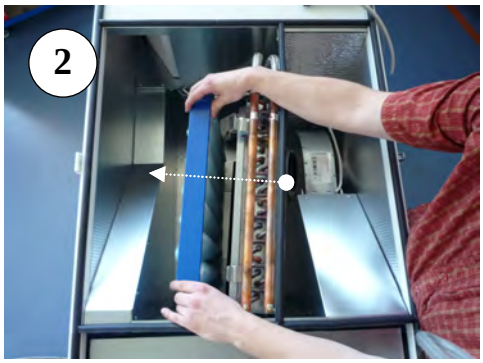
a) Recirculation filter - textile

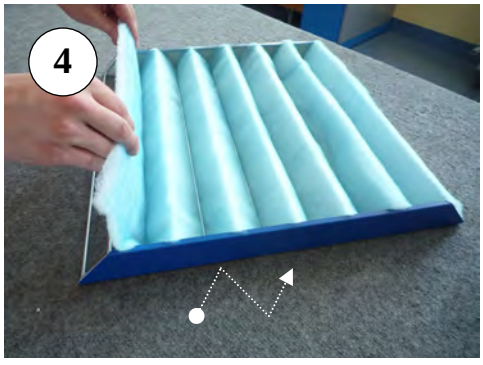
① Disconnect the hot air unit from power supply by switching off the upstream circuit breaker.

② Open the door.

③ Slide out the filter and replace the G4 (F7) cloth. Make sure the filter is positioned so that air comes in through the blue side of the filter and comes out through the white one (the white side faces the fan). An F7 filter must be positioned so that air enters through the “hairy” side. Slide the filter back in. Filters in DUPLEXVENT R_3 units should be replaced after approx. 10-12 weeks of operation. The replacement interval is shown on the CP08RD controller.





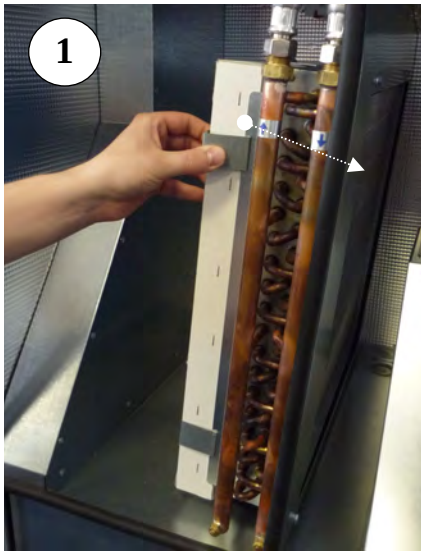


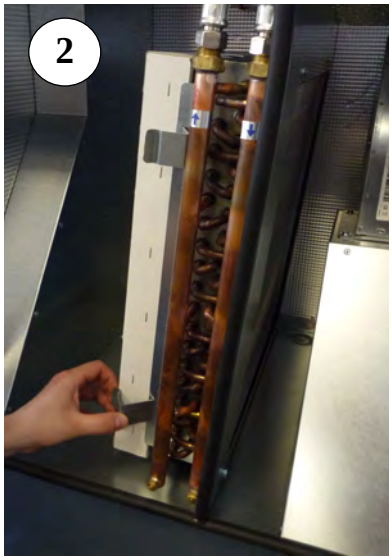
④ Close the door. Re-connect the hot air unit to power supply by switching on the circuit breaker.

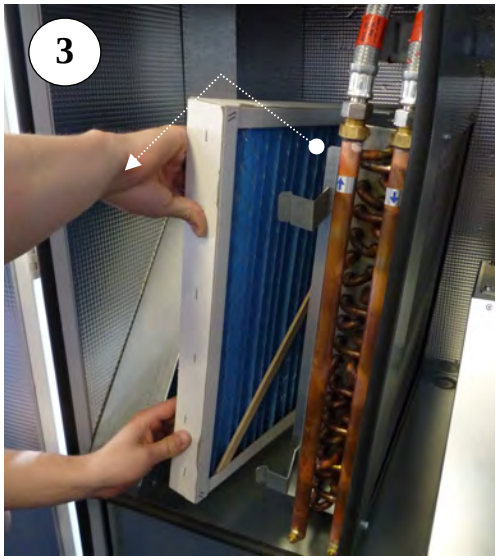
b) Recirculation filter - cassette

① Disconnect the hot air unit from power supply by switching off the upstream circuit breaker.
② Open the door.

③ Slide out the G4 (F7) cassette filter. The direction of air passage through the filter is indicated on the filter by an arrow. Filters in DUPLEXVENT R_3 units should be replaced after approx. 10-12 weeks of operation. The replacement interval is shown on the CP08RD controller.



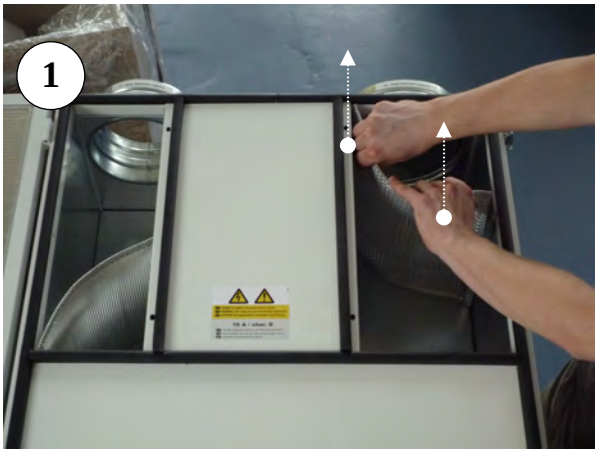




④ Close the door. Re-connect the hot air unit to power supply by switching on the circuit breaker.

c) Pre-filters (expanded metal mesh)

① Disconnect the hot air unit from power supply by switching off the upstream circuit breaker.
② Open the door.
③ Slide out the filter, wash it with warm water (max. 60-70℃) with detergent and let it dry (can be cl eaned in a dishwasher). Slide back in Slide out the filter, wash it with warm water (max. 60-70℃) with detergent and let it dry (can be cleaned in a dishwasher). Slide back in.



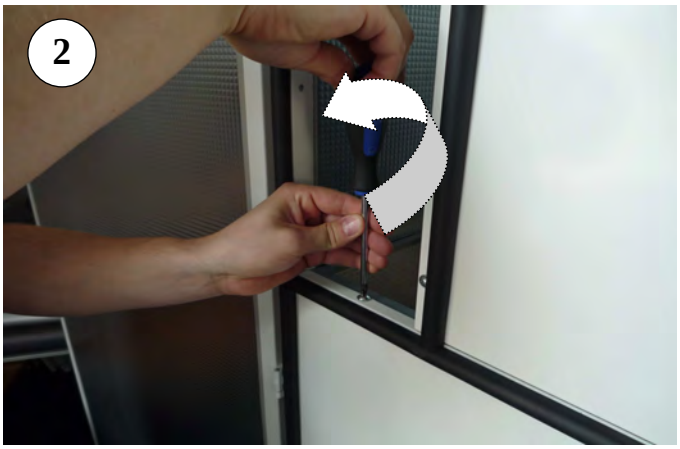
④ Close the door. Re-connect the hot air unit to power supply by switching on the circuit breaker.

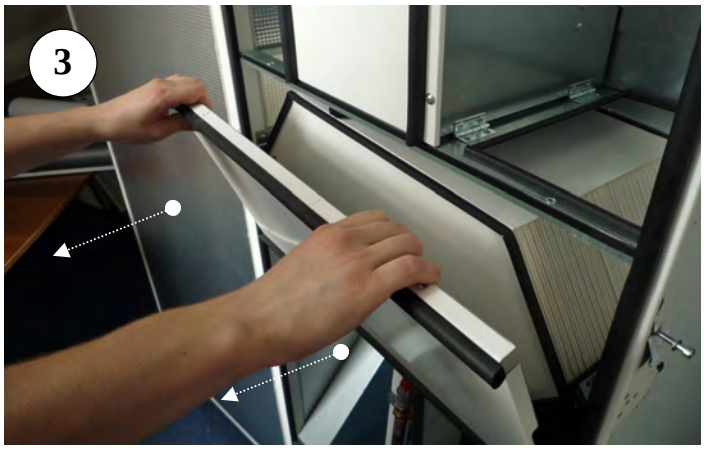
Cleaning the heat recovery exchanger

Provided that proper maintenance and filter cassette replacement are carried out, the heat recovery exchanger does not have to be cleaned very often. Clean only when heat-exchange surfaces have been stained. Cleaning should be done approximately once every 4-5 years of operation.

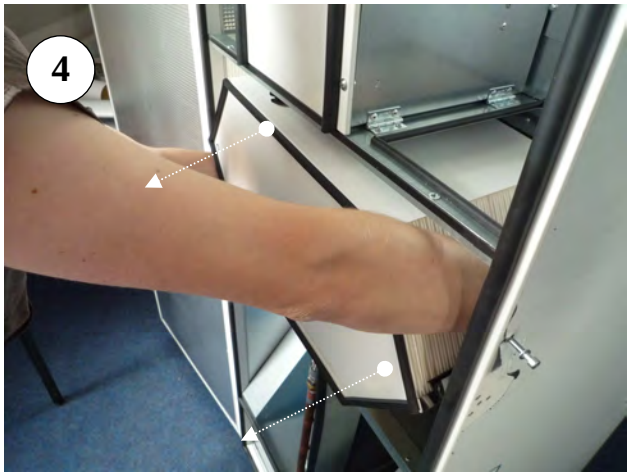
Cleaning the heat recovery exchanger of DUPLEXVENT RA3 hot air units

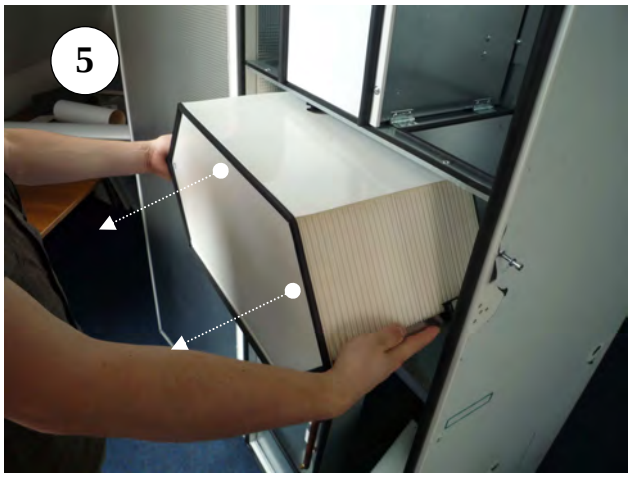
① Disconnect the hot air unit from power supply by switching off the upstream circuit breaker.
② Open the door.





③ Slide the heat recovery exchanger out along the guide rails.





④ Clean the heat recovery block by warm water (max. 60-70℃) with detergent and let it dry.

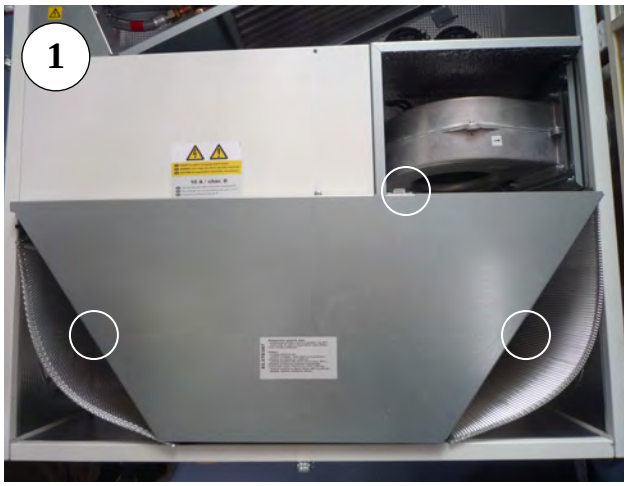
⑤ Fit the heat recovery exchanger back in the same position. Install the cover

Cleaning the heat recovery exchanger of DUPLEXVENT RB3 warm air units

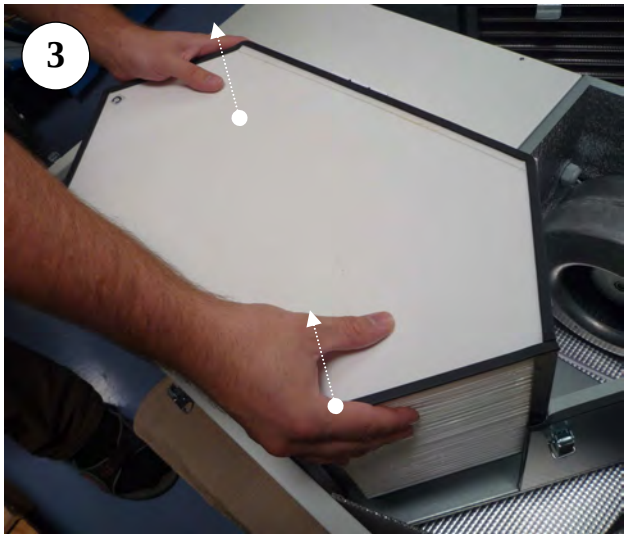
① Disconnect the warm air unit from power supply by switching off the upstream circuit breaker.

② Open the door.

③ Loosen the clips that hold the exchanger cover in place and remove it (hold with your hand, otherwise the cover might fall down due to its overhead position!!!)



④ Slide the heat recovery exchanger out along the guide rails (hold with your hand – overhead handling!!!).



⑤ Clean the heat recovery block by warm water (max. 60-70℃) with detergent and let it dry.

⑥ Fit the heat recovery exchanger back in the same position, fit the cover and secure

5. General technical data

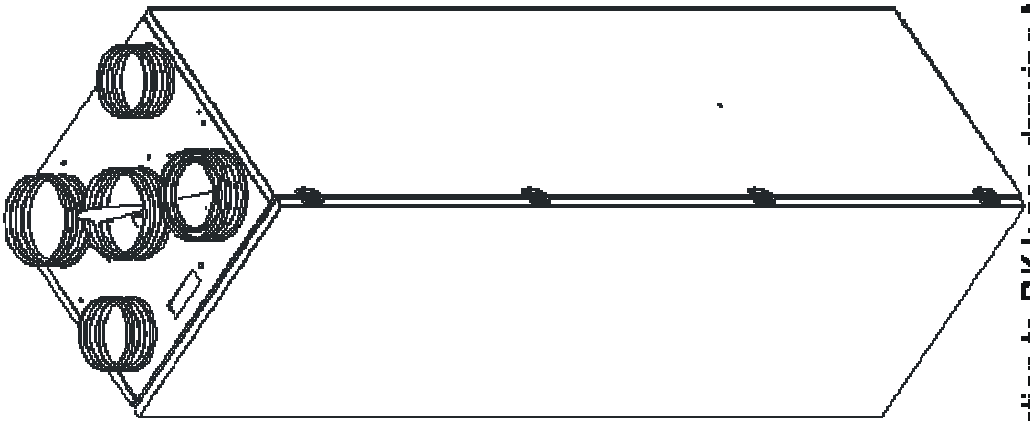
The general technical data of DUPLEXVENT R_3 units are specified in the appendix.
Other detailed technical data of DUPLEXVENT R_3 units and the CP08RD controller are shown in technical data sheets and accompanying documents (Installation details etc.).

D) Fitting DUPLEXVENT R_3 units

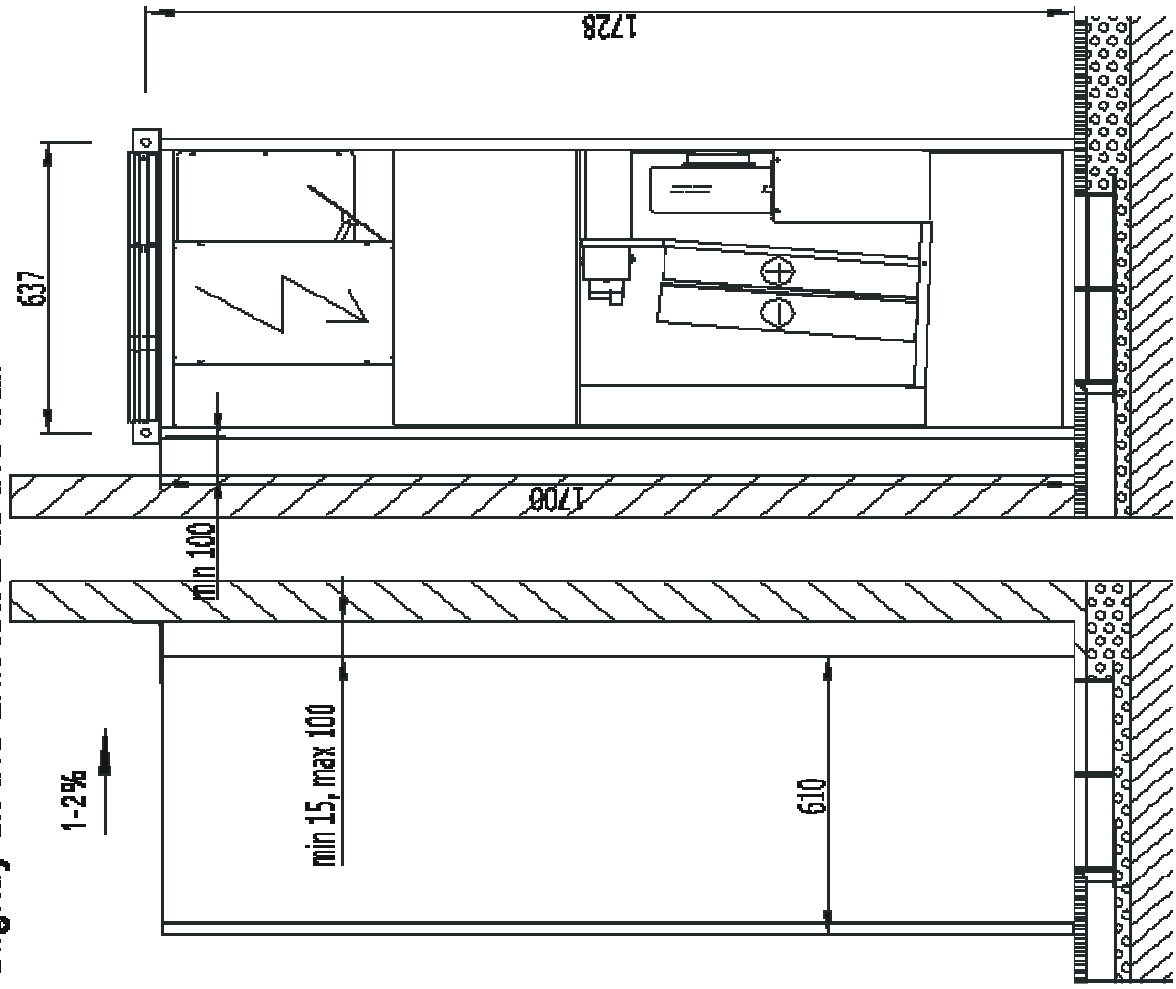
DUPLEXVENT RA3

DUPLEXVENT RA3 - fitting the unit and connection to the distribution chamber

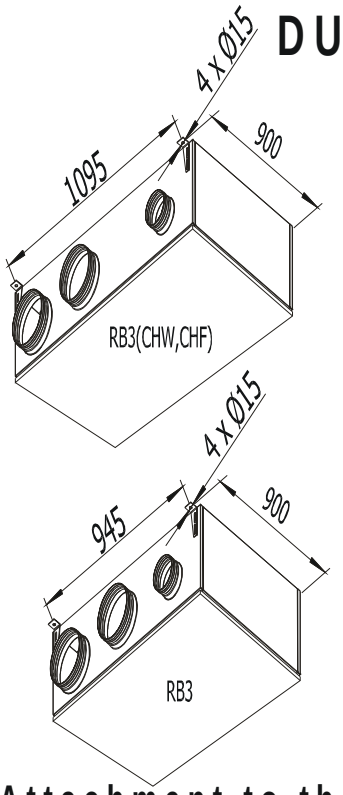
Slightly tilt the unit towards the wall



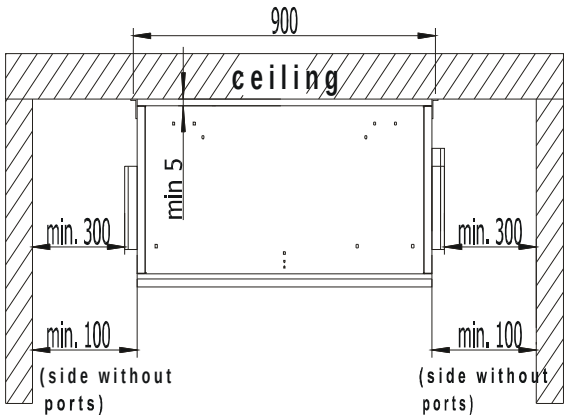
Connection to RKJ: see drawing MD13b Fixing to the building structure to be designed depending on the weight of the unit.



DUPLEXVENT RB3 – fitting the unit



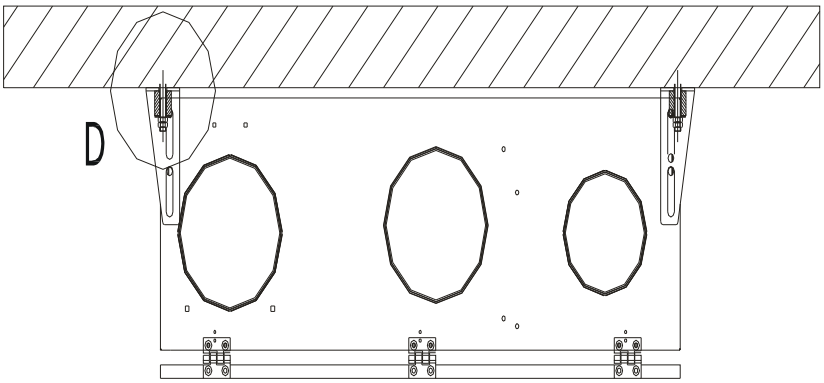
ceiling-mounted unit



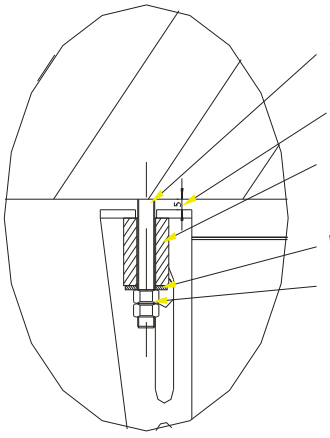
Attachment to the building structure to be designed according to the weight of the unit. Slope the unit toward the condensate drain (minimum slope 1%).

Leave a space of at least 5 mm between the unit and ceiling. Minimum lateral distances: 100 mm from the side without ports, 300 mm from the side with ports.

Optional fixing of ceiling-mounted DUPLEXVENT RB3 units on to anti-vibration mountings



Detail D



threaded rod M12

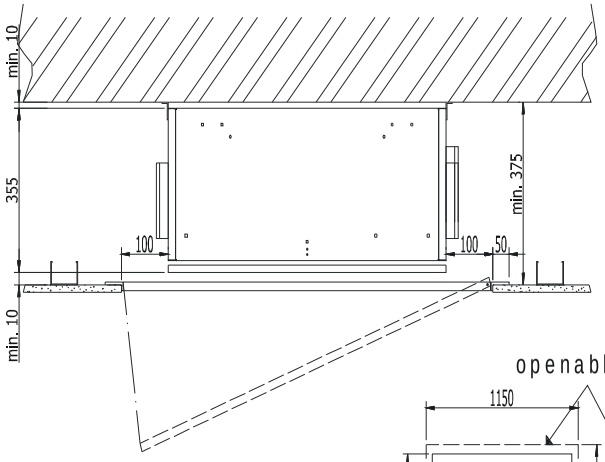
minimum distance between the mounting and ceiling – 5 mm

rubber bushing (anti-vibration mounting) e.g. Rubena GP 32x13.5/32

washer, e.g. R 13x30

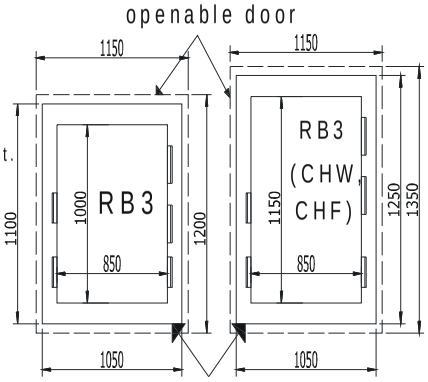
2 x nut M12

Ceiling-mounted DUPLEXVENT RB3: covering ceiling-mounted units



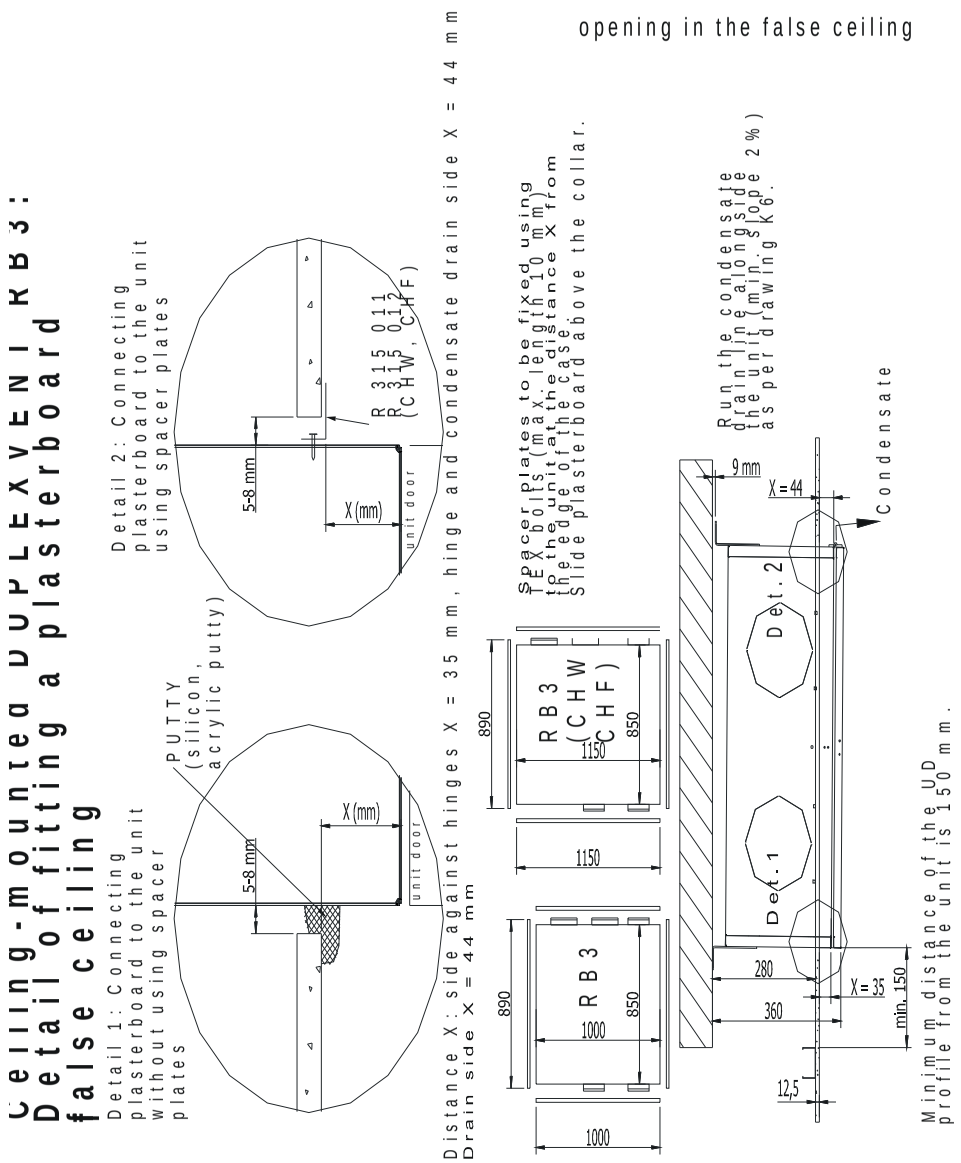
Fit a false ceiling at least 10 mm below the unit.
Cover the unit with an openable door
(e.g. an inspection access door with,
US lock, 12.5 mm thick)

Door size – see the dimensional drawing
Fit the door flush with plasterboard as per
the supplier´s documentation.



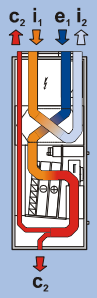
opening in the false ceiling

Ceiling-mounted DUPLEXVENT RB3: Detail of fitting a plasterboard false ceiling



E) Operating modes of DUPLEXVENT R_3 units

DUPLEXVENT RA3

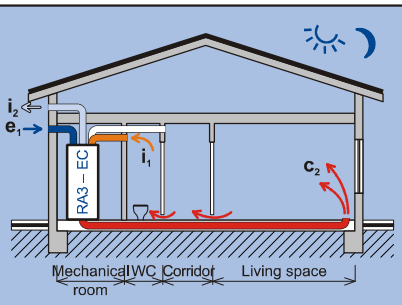


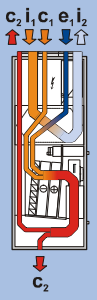
1 Equal-pressure ventilating mode

Year-round operation

n_v = 0,15 – 0,5 /h^{-1}/ n_c = 0 /h^{-1}/

Equal-pressure ventilation with adjustable capacity of 75 to 450 m^3/h, using heat recovery or by-pass.
It is designed for year-round ventilation and reheat (without circulation) during off season operation. Both fans ON, mixing damper off.



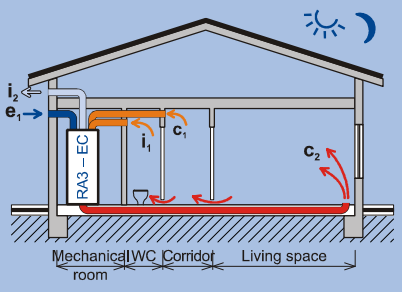


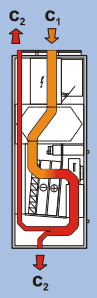
2 Circulation heating and ventilating mode

Heating season

n_v = 0,15 – 0,5 /h^{-1}/ n_c = 0,5 – 1,5 /h^{-1}/

Warm-air circulation heating and equal-pressure ventilation with heat recovery with recirculating air volume flow up to 500 m^3/h (at 150 Pa) and ventilation air volume flow up to 450 m^3/h
Both fans ON, mixing damper mixing outdoor and recirculated air.



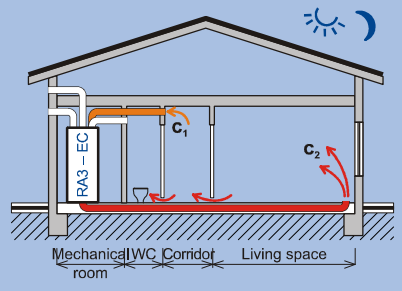


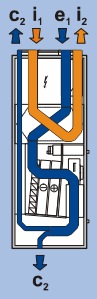
3 Circulation heating mode with occasional ventilation

heating season

n_v = 0 n_c = 0,5 – 1,5 /h^{-1}/

Basic recommended operating mode of circulation heating. When occipied, bathroom switch operates occasionally exhaust fan with adjustable stop delay time, kitchen switch operates the fan in mode 1 without stop delay. The ventilation can be oparated in set period. All with heat recovery. When using mechanical cooling/heating, this mode is used to control condensing unit to temper rooms in off season (spring, fall).



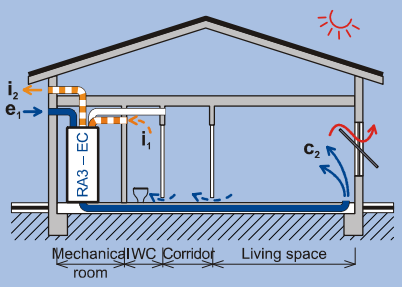


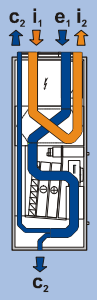
5 Positive-pressure ventilating mode

Summer season

n_v = 0,5 – 2,0 /h^{-1}/ n_c = 0 /h^{-1}/

Intensive summer positive-pressure room ventilation using full outside air intake, possibly through a ground heat exchanger. Can also be used for night precooling.
Air exhaust via open windows.
Exhaust fan operated via switch, mixing damper in position „2“, by-passu damper open.



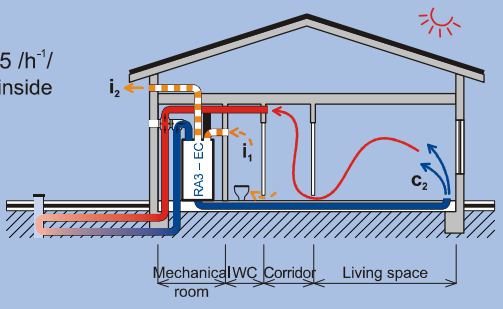


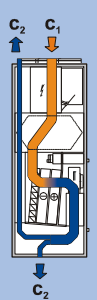
6 Circulating cooling mode using ground heat exchanger (ZVT-c; ZVT-s)

Summer season

n_v = 0 /h^{-1}/ n_c = 0,5 – 1,5 /h^{-1}/

Intensive summer circulation cooling of rooms using inside air, recirculated through a ground heat exchanger.
Exhaust fan operated via switch, mixing damper in position „2“, by-passu damper open.
Only in combination with a ground heat exchanger (circulating air or antifreeze mixture.



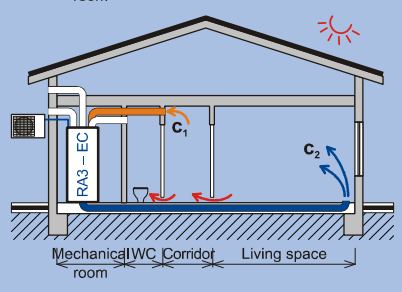


6a Circulating mode of mechanical cooling

Summer season

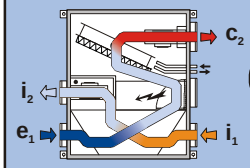
n_v = 0 /h^{-1}/ n_c = 0,5 – 1,5 /h^{-1}/

Intensive summer circulation cooling of rooms using an outdoor condensing unit („mechanical cooling“).
When occipied, bathroom switch operates occasionally exhaust fan with adjustable stop delay time, kitchen switch operates the fan in mode 1 without stop delay. In this case cooling is not allowed. Possibly, the ventilation can be oparated in set period.



c_1 ..... Circulating return air from rooms to the unit
c_2 ..... Heating, cooling and fresh air supply from the unit to rooms
e_1 ..... Fresh outside air inlet
i_1 ..... Exhaust air from bathrooms to the unit
i_2 ..... Exhaust air outlet from the unit

DUPLEXVENT RB3

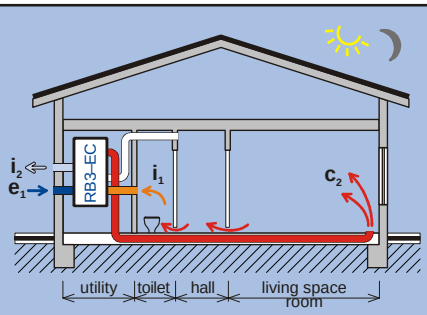


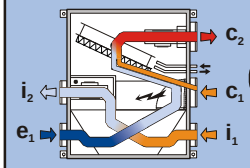
Balanced pressure ventilation mode

all year round

n_v = 0,15 – 0,5 /h^{-1}/ n_c = 0 /h^{-1}/

Balanced pressure ventilation with adjustable ventilation capacity 75 to 450 m^3/h, with heat recovery or via a bypass. It is designed for ventilation and additional heating (without recirculation) in the transitional period. Both fans are running, the mixing damper is shut down.



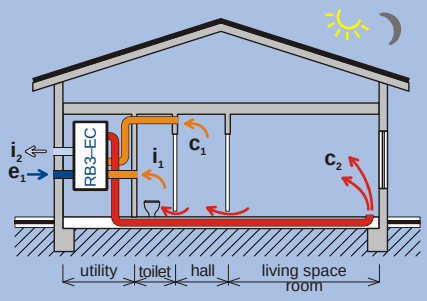


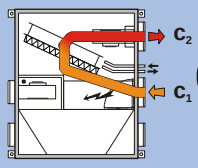
Recirculation heating and ventilation mode

heating season

n_v = 0,15 – 0,5 /h^{-1}/ n_c = 0,5 – 1,5 /h^{-1}/

Hot air recirculation heating and balanced pressure ventilation with the recovery of exhaust heat, with recirculation capacity up to 500 m^3/h (at 150 Pa) and ventilation capacity up to 450 m^3/h.
Both fans are running, the mixing damper is mixing outside and recirculation air.



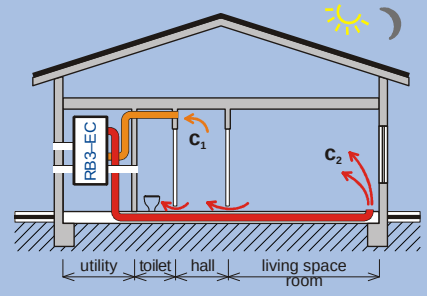


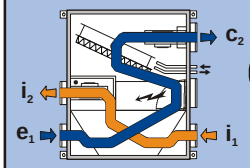
Recirculation heating mode with intermittent ventilation

heating season

n_v = 0 n_c = 0,5 – 1,5 /h^{-1}/

The basic recommended operation mode of recirculation heating. When people are present, the extraction fan with adjustable run down time is switched on and off by an impulse from the toilet and bathroom, or an impulse from the kitchen to mode 1 without run down time. Ventilation can also be started periodically at set interval, always with heat recovery. This mode is also used for heating via an air-conditioning unit during the transitional period when mechanical cooling is provided.



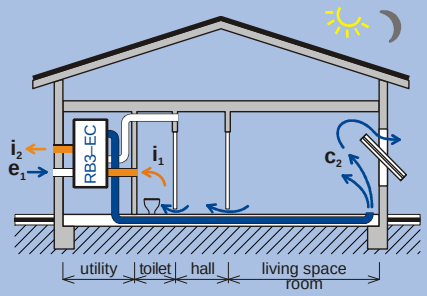


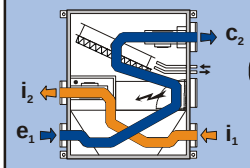
Overpressure ventilation mode

summertime

n_v = 0,5 – 2,0 /h^{-1}/ n_c = 0 /h^{-1}/

Intensive summertime ventilation of living spaces by a full supply of outside air or through a ground heat exchanger. This mode can also be used for cooling at night. Air is taken out via partially open windows. The exhaust air fan is started by an impulse, the mixing damper is in position “2”, the bypass damper is open.



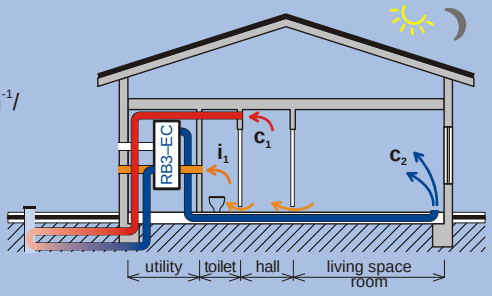


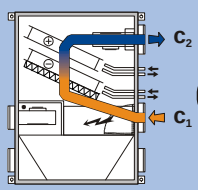
Recirculation cooling mode with a ground heat exchanger (GHE-c, GHE-s)

summertime

n_v = 0 /h^{-1}/ n_c = 0,5 – 1,5 /h^{-1}/

Intensive summertime circulation cooling of living spaces by indoor air recirculating through a ground heat exchanger. The exhaust air fan is started by an impulse, the mixing damper is in position “2”, and the bypass damper is open. It can only be used in conjunction with a ground air heat exchanger or using antifreeze fluid.



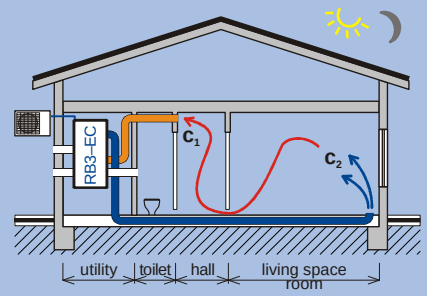


Recirculation mechanical cooling mode

summertime

n_v = 0 /h^{-1}/ n_c = 0,5 – 1,5 /h^{-1}/

Intensive recirculation cooling of living spaces in conjunction with an outdoor condensation unit (“mechanical cooling”). When people are present, the ventilation fan with adjustable run down time is switched on and off by an impulse from the toilet and bathroom, or an impulse from the kitchen to mode 1 without run down time. In this case cooling is disabled. Ventilation can also be started periodically at set intervals.

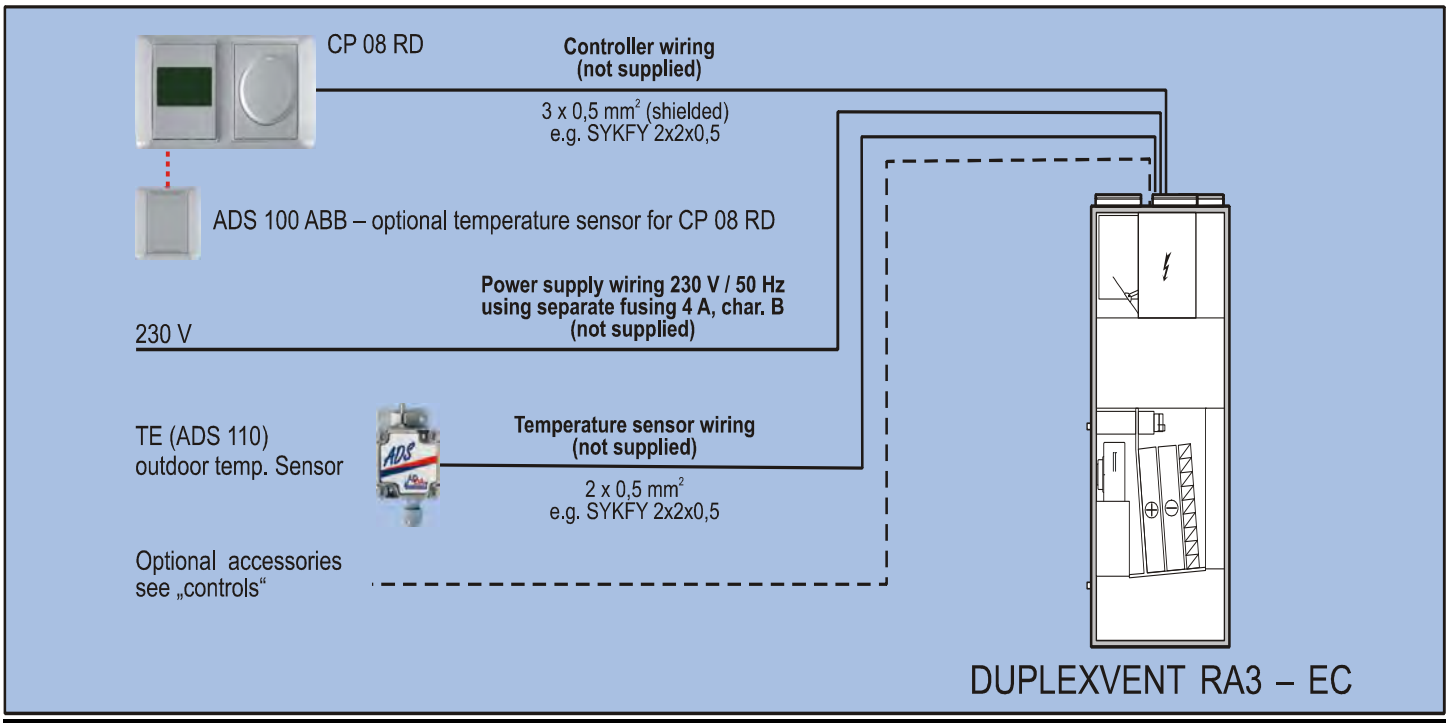


c_1 ..... an inlet of recirculation air from living spaces to the unit
c_2 ..... **a**n outlet of heating, cooling and fresh air from the unit to living spaces

e_1 ..... **a** fresh outside air inlet
i_1 ..... an inlet of exhaust air from sanitary facilities to the unit
i_2 ..... an outlet of exhaust air from the unit

F) Control system connection diagram

DUPLEXVENT RA3 - EC (also applies to other DUPLEXVENT R 3 series units - an identical system of control)



An alternative method of connecting a standard control system (measurement & control) for DUPLEXVENT R_3 - EC units:
(more alternative ways of connecting eternal devices and controls or sensors. From the controlling point of view some inputs and outputs are optional and depending on the settings made by the service technician may be used for different purposes - programmable settings. Some items are therefore shown more times in the connection diagram, during installation, however, can only be used for a single specific function selection. The particular method of connection will be specified by the designer or installation firm).

Basic DUPLEXVENT R_3 connections

DUPLEXVENT R	Cable type	Application	Room name, No	Completed, checked
L N PE	CYKY 3Jx1,5	Supply voltage 230V/50Hz - recommended protection 4A, char. B	☐	☐ ☐
PW COM GN	SYKFY 2x2x0,5	12V COM GND Controller CP 08 RD	☐	☐ ☐
		VC T GND SYKFY 2x2x0,5 VC T GN Room temperature sensor ADS 100-ABB (optional)	☐	☐ ☐
VC TE GN	SYKFY 2x2x0,5	VC T GND Outside air temperature sensor TE1-ADS110	☐	☐ ☐

Optional elements

D1 N1	CYKY 2Ox1,5	L N Lighting, switch (toilet, bathroom)	☐	☐ ☐
D2 N2	CYKY 2Ox1,5	L N Lighting, switch (toilet, bathroom)	☐	☐ ☐
D3 N3	CYKY 2Ox1,5	L N Lighting, switch (toilet, bathroom)	☐	☐ ☐
D4 N4	CYKY 2Ox1,5	L N Supply switch (e.g. Kitchen)	☐	☐ ☐
		-inputs for external signals 230V/50Hz (intended for switching phase voltage from an independent lifting circuit)		
SV 24V G0	CYKY 3Ox1,5	3 2 1 Ground exchanger shut-off damper or facade fresh air suction damper servo drive -control voltage 24V, max. 0.5 A (servo drive type e.g. LM 24A)	☐	☐ ☐
STP GN	SYKFY 2x2x0,5	HVAC emergency shut down -input for voltage-free opening contact	☐	☐ ☐
IN1 GN	JYTY 4x0,8	Analogue/contact input No. 1 – e.g. CO_2, movement or relative humidity sensor (signal 0-10V, closing contact)	☐	☐ ☐
IN2 GN	JYTY 4x0,8	Analogue/contact input No. 2 – e.g. CO_2, movement or relative humidity sensor (signal 0-10V, closing contact)	☐	☐ ☐
EXT 24V GN	CYKY 3Ox1,5	3 2 1 Low voltage output 24 V / max. 2W (e.g. controlling kitchen extraction damper servo drive LM 24A)	☐	☐ ☐
SZ1 24V GN	CYKY 3Ox1,5	3 2 1 Zone ventilation damper servo drive – zone 1, control voltage 24V, max. 0.5A (servo drive type e.g. LM 24A)	☐	☐ ☐
SZ2 24V GN	CYKY 3Ox1,5	3 2 1 Zone ventilation damper servo drive – zone 2, control voltage 24V, max. 0.5A (servo drive type e.g. LM 24A)	☐	☐ ☐

If the source is a boiler or IZT or an electric boiler

DUPLEXVENT R	Cable type	Application	Room name, No	Completed, checked
YV1 GN	CYKY 3Ox1,5	1st heating water circuit shut-off valve (output signal 24V dc/max. 0.5A)	☐	☐ ☐
K K	CYKY 3Ox1,5	Hot water source control - closing contact (max. 230V/0.5A)	☐	☐ ☐
TR GN	SYKFY 2x2x0,5	External thermostat - input for voltage-free closing contact	☐	☐ ☐
YV2 GN	CYKY 3Ox1,5	2nd heating water circuit shut - off valve (output signal 24V dc/max. 0.5A)	☐	☐ ☐

If the source is a condensation boiler

DUPLEXVENT R	Cable type	Application	Room name, No	Completed, checked
K K	CYKY 3Ox1,5	Hot water source control - closing contact (max. 230V/0.5A)		
DA2 GN	SYKFY 2x2x0,5	Signal 0-10V output - condensation boiler temperature control		

If the source is an electric heater

DUPLEXVENT R	Cable type	Application	Room name, No	Completed, checked
SK GN	SYKFY 2x2x0,5	Y1 G0 0-10V signal output -switching on electric heater (e.g. EPO-V) -impulse control -connections made inside the unit		

If the source is a controllable node

DUPLEXVENT R	Cable type	Application	Room name, No	Completed, checked
YV1 GN	CYKY 3Ox1,5	1st heating water circuit shut - off valve (output signal 24V dc/max. 0.5A)		
K K	CYKY 3Ox1,5	Hot water source control-closing contact (max. 230V/0.5A)		
SK 24V GN	CYKY 3Ox1,5	3 2 1 SK output, signal 0-10V - control node valve control (e.g. servo drive LM24SR)		
TR GN	SYKFY 2x2x0,5	External thermostat - input for voltage-free closing contact		
YV2 GN	CYKY 3Ox1,5	2nd heating water circuit shut-off valve (output signal 24V dc/max. 0.5A)		

If a HP is installed with back-up source TPV

DUPLEXVENT R	Cable type	Application	Room name, No	Completed, checked
YV1 GN	CYKY 3Ox1,5	1st heating water circuit shut-off valve (output signal 24V dc/max. 0.5A)		
K K	CYKY 3Ox1,5	Hot water source control - closing contact (max. 230V/0.5A)		
TR GN	SYKFY 2x2x0,5	External thermostat - input for voltage-free closing contact		
YV2 GN	CYKY 3Ox1,5	2nd heating water circuit shut-off valve (output signal 24V dc/max. 0.5A)		
DA1 GN	SYKFY 2x2x0,5	0-10V signal output - heat pump performance level control		
OC1 GN	SYKFY 2x2x0,5	Closing output - switching HP over (closed = heating ON), +12V, max. 30mA (open collector)		
DF NF	CYKY 2Ox1,5	L N Heat pump output contact - outdoor unit defrost indication		

If the cooling source is an evaporator (Dir)

DUPLEXVENT R	Cable type	Application	Room name, No	Completed, checked
OC1 GN	SYKFY 2x2x0,5	Closing output - switching HP over (closed = heating ON), +12V, max. 30mA (open collector)		

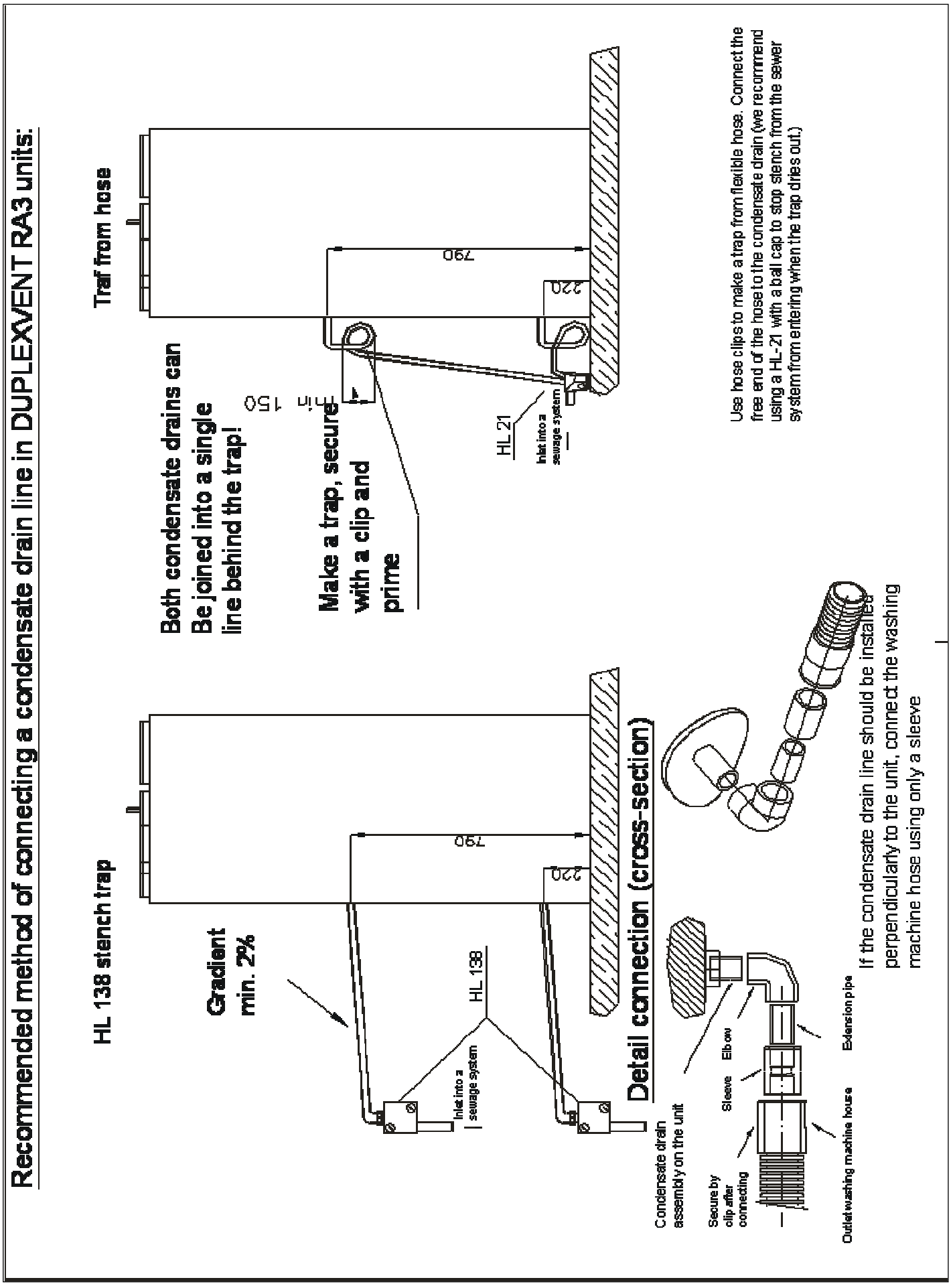
If the cooling source is an HP or water chiller (TC)

DUPLEXVENT R	Cable type	Application	Room name, No	Completed, checked
DA1 GN	SYKFY 2x2x0,5	0-10V signal output - heat pump performance level control	☐	☐ ☐
OC1 GN	SYKFY 2x2x0,5	Closing output - switching HP over (closed = heating ON), +12V, max. 30mA (open collector)	☐	☐ ☐
DF NF	CYKY 2Ox1,5	L N Heat pump output contact - outdoor unit defrost indication	☐	☐ ☐
SC C	CYKY 3Ox1,5	Closing output - cooling request signal (relay, max 8A, 230V)	☐	☐ ☐

A circulation GHE (GHEc) is installed

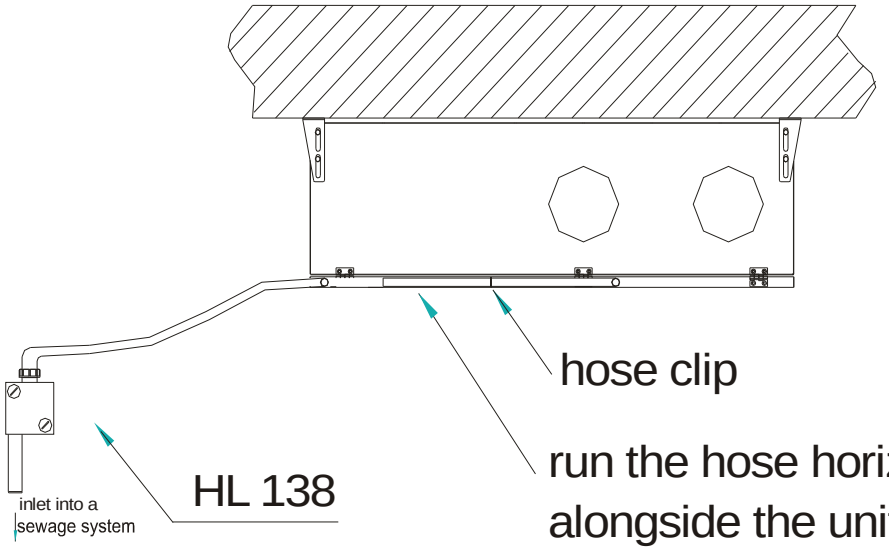
DUPLEXVENT R	Cable type	Application	Room name, No	Completed, checked
SE 24V GN	CYKY 3Ox1,5	3 2 1 GHEc damper servo drive fresh air inlet from facade - control voltage 24V, max. 0.5A (servo drive type e.g. LM 24A)	☐	☐ ☐
SC 24V GN	CYKY 3Ox1,5	3 2 1 GHEc damper servo drive - circulation damper-control voltage 24V, max. 0.5A (servo drive type e.g. LM 24A)	☐	☐ ☐

G) Connecting condensate drain

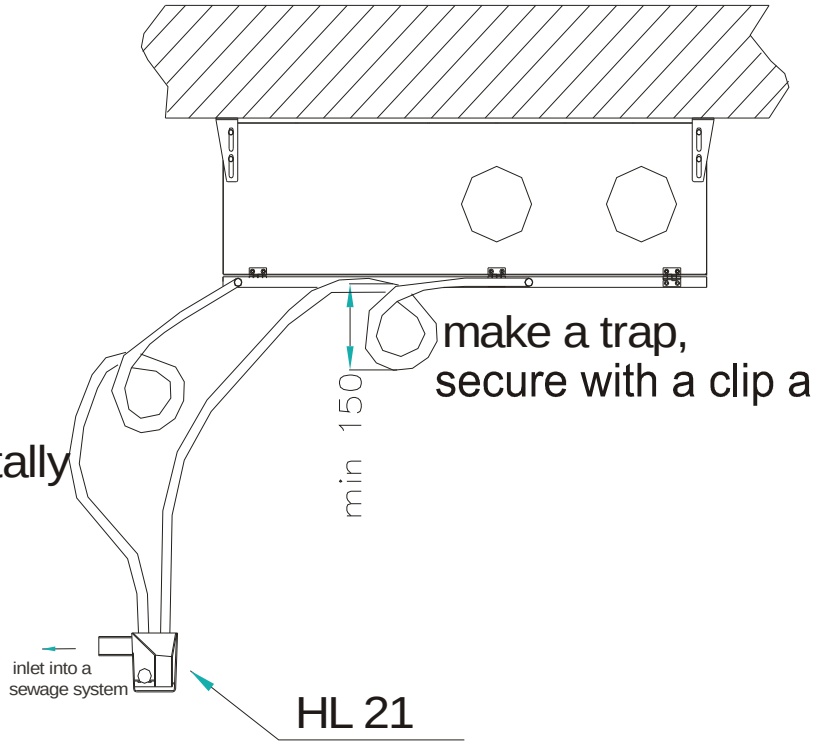


Recommended method of connecting a condensate drain line in ceiling-mounted units DUPLEXVENT RB3

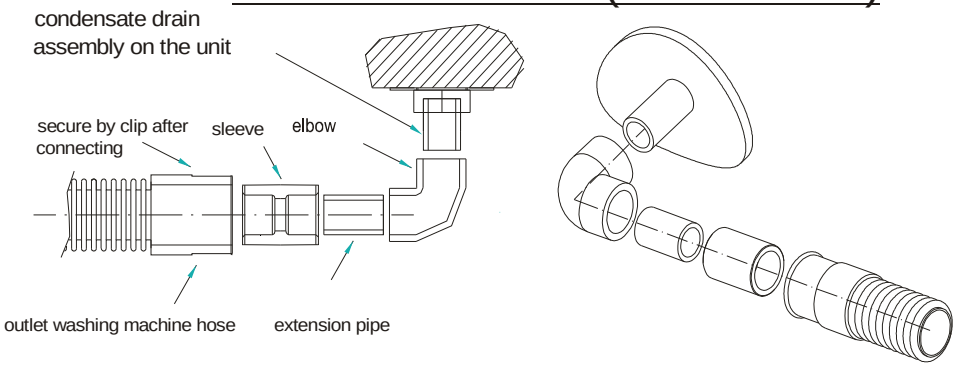
HL 138 stench trap



trap from hose



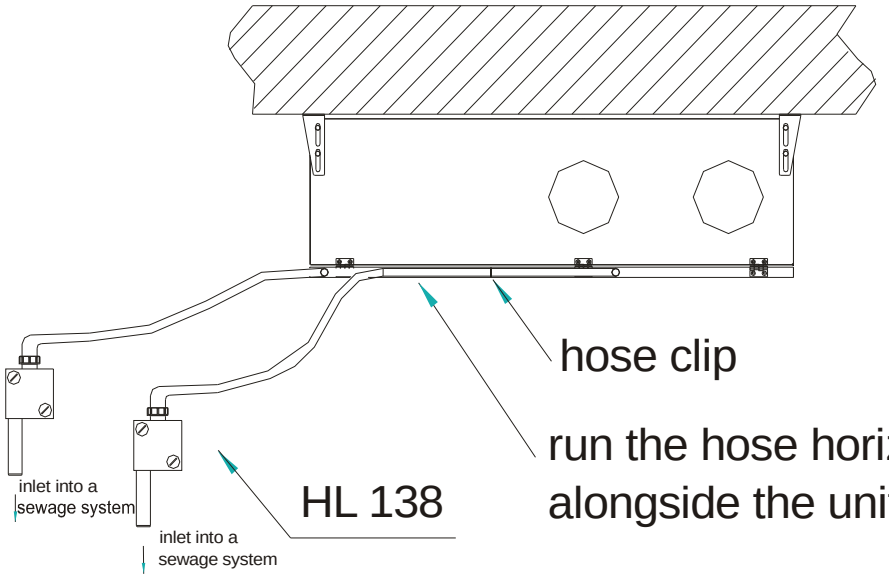
detailed connection (cross-section)



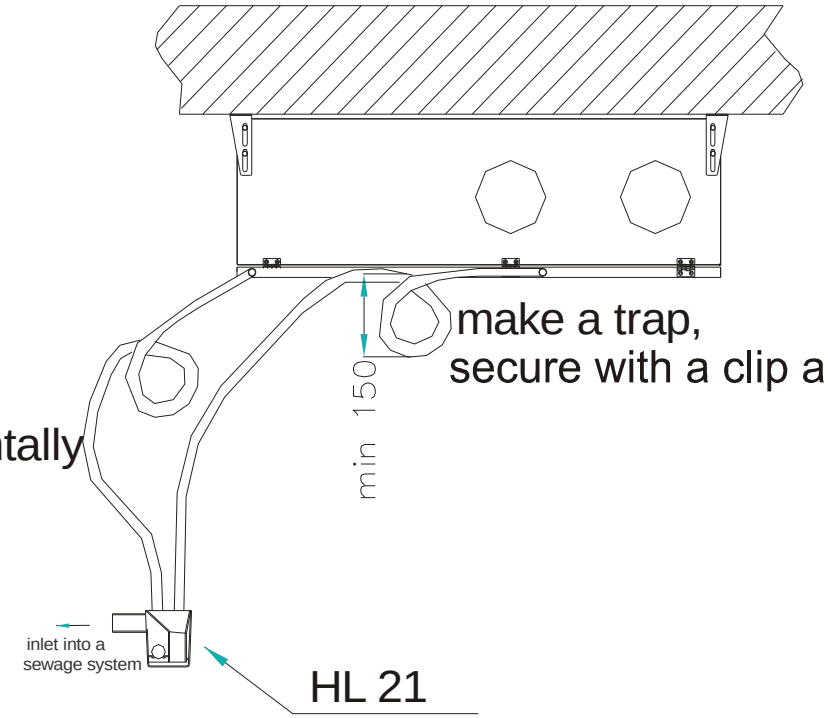
Use hose clips to make a trap from flexible hose.
Connect the free end of the hose to the condensate drain
(we recommend using a HL-21 with a ball cap to stop stench
from the sewer system from entering the building when the trap dries out).

Recommended method of connecting a condensate drain line in ceiling-mounted units DUPLEXVENT RB3-CHW; CHF;CHP

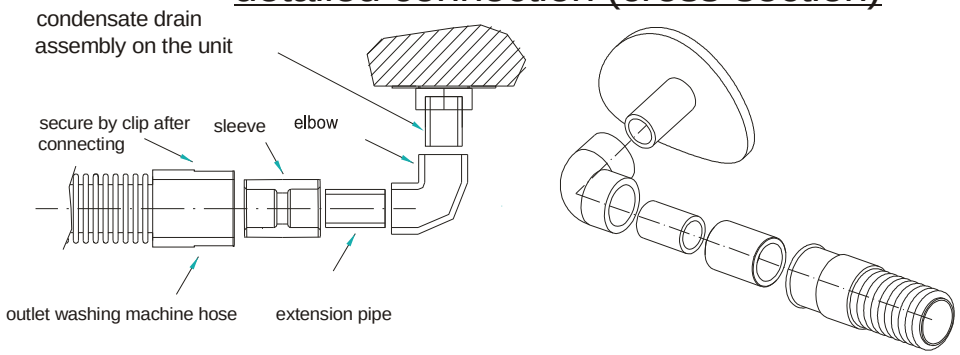
HL 138 stench trap



trap from hose



detailed connection (cross-section)



Use hose clips to make a trap from flexible hose.
Connect the free end of the hose to the condensate drain
(we recommend using a HL-21 with a ball cap to stop stench
from the sewer system from entering the building when the trap dries out).