



Fresh-r
Smart indoor
air care

fresh-r |

In-The-Wall

Installation manual



IMPORTANT: Read this manual carefully before installing the fresh-r

Keep this manual for future use.

CE

Installation manual

Foreword

Installation manual for the contractor/owner installer

Dear contractor,

Thank you for purchasing the fresh-r In-The-Wall. This manual is intended for professionals and contains all the necessary installation information.

To install the fresh-r correctly and safely, it is essential that you read this information carefully and familiarize yourself with the fresh-r before you start. The fresh-r requires a fused 220V mains electricity supply with earth and must be connected by a qualified electrician.

The information in this manual is important for the correct and safe installation of the fresh-r. With the table of contents, you'll be able to find the right information in the manual quickly.

This is the installation manual. Besides this manual there is also a user manual available which covers operation and maintenance.

NOTICE

This manual covers installation of the Fresh-r In-The-Wall ONLY. It does not include the Everywhere version

Some illustrations might differ from the actual model and options that you have purchased.

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1. Intended use

The fresh-r In-The-Wall is a decentral ventilation unit with heat recovery. The fresh-r takes heat from the stale air it expels and uses it to warm up the fresh air it brings in from outside.

It improves air quality for a healthy indoor air quality and at the same time reduces your energy bill. No ducting is needed for this unit, which makes installation easier than a conventional HRV system. The fresh-r is equipped with CO², RH and temperature sensors and has an intelligent control system.

The fresh-r has been set-up and tested prior to delivery. Other than checking/ensuring correct installation there is no requirement for commissioning.

The fresh-r On-The-Wall may only be installed on an external wall.




2. Target group

The manual describes how to install the fresh-r. The installation must be done by contractors who are familiar with local building regulations.

Connecting the fresh-r to the mains electricity supply must be done by a qualified electrician.

3. Symbols used in this manual

3.1 Safety symbols

	Indicates an immediate risk of irreversible injury or death when not observed.
	Indicates that the product may be damaged if the procedures are not followed carefully.
	Alerts the user to additional information and possible problems.

3.2 Other symbols



CE marking: This is the CE logo indicating that the fresh-r meets the legal requirements.

4. General safety instructions

⚠ DANGER

- Connecting the fresh-r to the mains electricity supply must be done by a qualified electrician.
- Risk for electric shocks or electrocution. Turn off the mains electricity supply in the distribution box before connecting the fresh-r electrically.
- The person responsible for installing the fresh-r should be familiar with the local building regulations.

5. Main components



Figure 1 Main components

- A. ON/OFF switch
- B. Power connection wire 3 meter
- C. Unibody
- D. Front door

- E. Grille x 2 pieces including screws and wall plugs ^A
- F. Duct pipe EPP covers ^C
- G. Duct pipes

6. Installation Frame

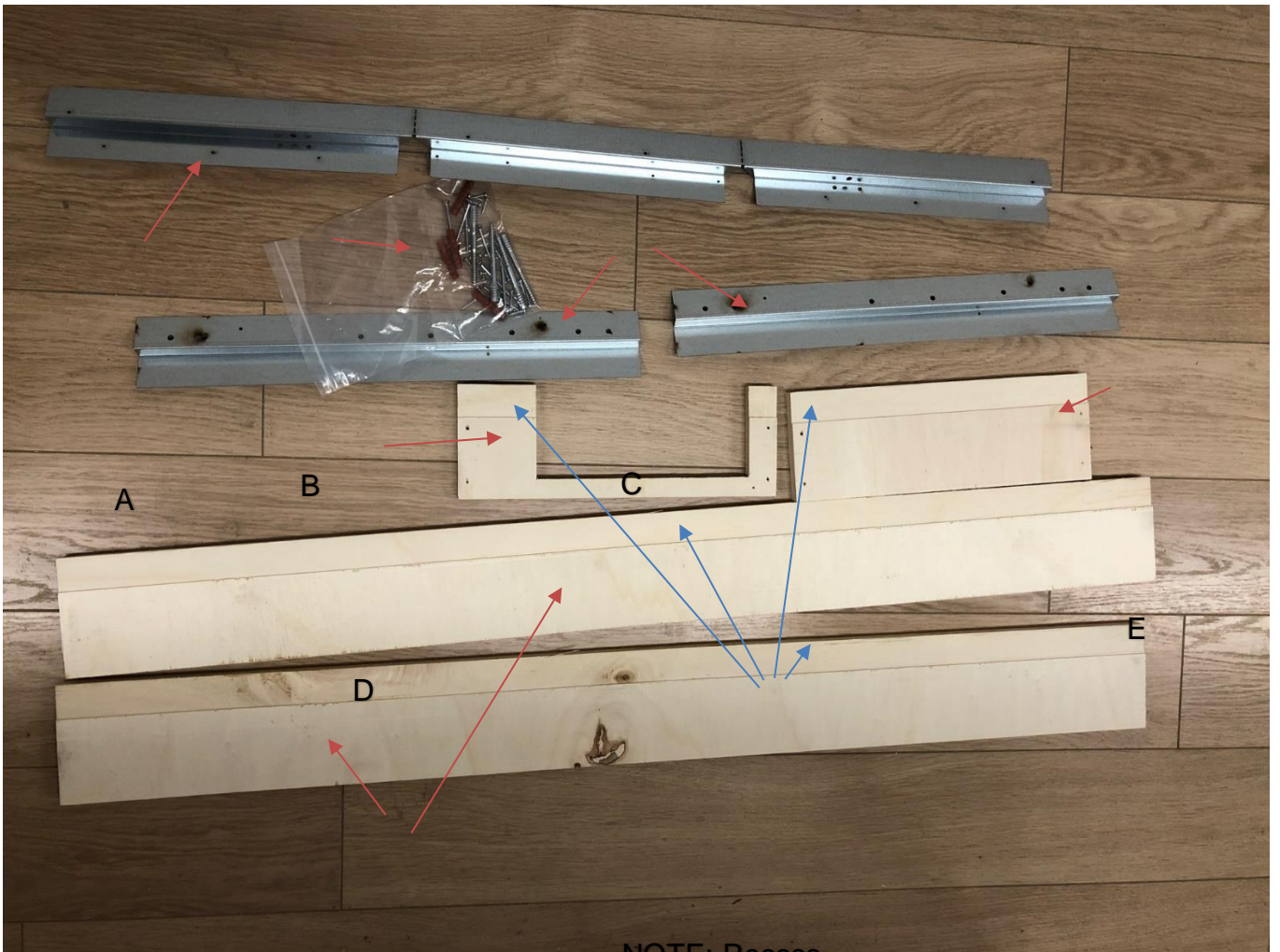


Figure 2 Installation frame contents

NOTE: Recess

- A. 2No. Metal edge for top and bottom
- B. 4No. Distance screws + 4 No. wall plugs, 24No. wood screws for mounting metal edges, 6No. wood screws for securing door frame into timber frame, 8no. wood screws for assembly of timber frame.
- C. 2 No. Left and Right middle pieces – metal edge
- D. 1No.Top piece of timber frame
- E. 1No.Bottom piece of timber frame
- F. 2No. side pieces timber frame

7. Installation Frame Assembly



Figure 4 Timber frame screwed together



Figure 3 Bending U shape top and bottom metal edge

7.1 Assemble the timber frame

- i) Put the 4 pieces of the timber frame together with the recess all facing inwards and all on the top edge.
- ii) Use the 8 screws to fix the pieces together. The top and bottom pieces each have 4 pilot holes where the screws should be used.
- iii) Don't fully tighten the 4 screws on the part with the cutout yet.
- iv) Bend the two long metal strips so that they form a U shape



Figure 6 Place the 2 U shaped metal edges



Figure 5 Fasten the bottom U shape with the screws provided



Figure 8 Fit the two middle strips so that all edges do not overlap

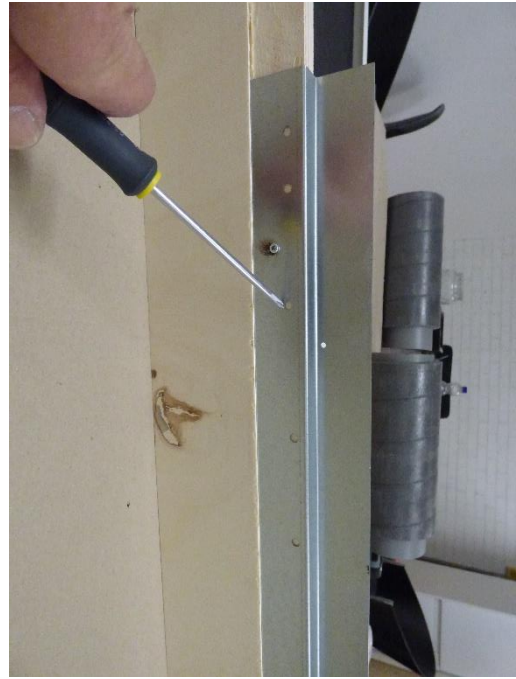


Figure 7 Install the screws and secure the middle strips so that they are fitting properly against the U shape that has been fastened with screws

- v) Place the top and bottom U-shaped metal edge
- vi) Secure the metal edge on the end without a cutout using the screws supplied
- vii) Fit the middle pieces between the U shapes and ensure that the edges are flush with no over lap
- viii) Secure the middle pieces tightly against the previously secured U shape
- ix) Tight the 4 wood screws to draw the top inwards until the U shape fits properly against the middle strip.
- x) Secure the U shape with the screws provided.

7.2 Installation Frame for Everywhere version



Figure 10 Top U shape metal edge



Figure 9 Break U shape into 3 pieces

- i) Break the uninstalled U shape into 3 pieces
- ii) Insert the two side pieces and secure with screws
- iii) The top edge can be fitted and secured after installing the Fresh-r unit and extract duct connection

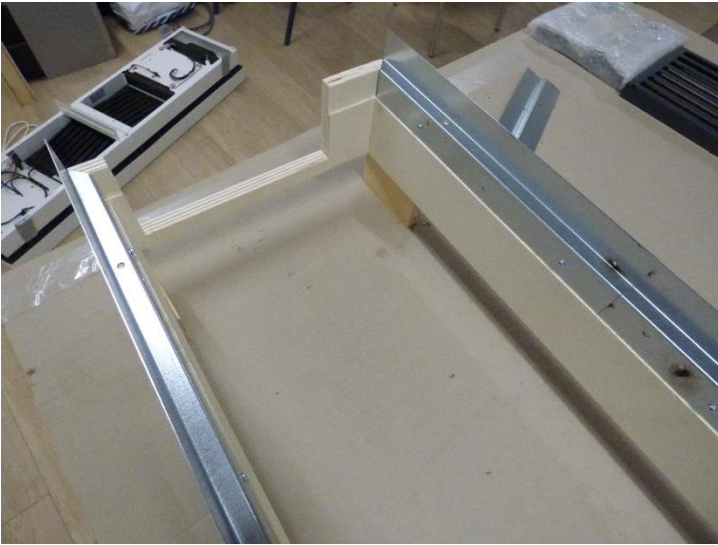


Figure 11 Installation Frame configured for the ITW Everywhere

8. Tools needed for the installation

- Equipment to drill 2 round holes (\varnothing 160 mm) in the wall (typically water-cooled diamond core drill)
- Equipment to cut the rectangular hole (1190mm X 340mm) in the inner wall – typically a disc cutting machine
- Torx 25 screwdriver
- Posidrive No. 2 screwdriver (Philips)
- 6mm Allen Key
- 8 mm masonry drill, 8mm wood drill
- PVC cement (this is standard glue for hard PVC)
- Spirit level (or another tool to check for a perfect vertical position)
- Deburring or grinding tool, such as a file
- EPP Glue (Bison Polymax) and expanding foam

9. How to install the fresh-r

DANGER

The person responsible for installing the fresh-r should be familiar with the local building regulations.

9.1 Prepare the wall

You will need a rectangular hole cutting in the inner wall 1190mm X 340mm and two round holes (**Ø 160 mm**) in the outer wall of the building, for the air pipes; **the lowest hole needs to have a slope of 2 degrees.**

For efficient ventilation place the unit centrally in the room, ideally at approximately 80cm from the floor level, but not too high. You should be able to see the user controls easily, which are mounted at the top left corner of the unit.

CAUTION

1. The duct pipes are 16mm off center to the right when looking from inside of the house.
2. The duct pipe core holes must be drilled from inside to outside any slight misalignment can be concealed when installing the grilles on the outside.

9.2 Cutting the rectangular cavity

- Mark the rectangle on the wall avoiding interference with electrical cables or water pipes. See figure 12 below for dimensions
- Check that you are content with where the duct pipe holes will be drilled with reference to the outer visual appearance of the grilles, adjust if necessary.
- Use a disc cutter fitted with an appropriate masonry disc and cut the top horizontal, followed by the two vertical sides. Only cut through the inner wall to the air gap. The air gap is probably filled with insulation. Knock the block work out as you go and finally cut the bottom horizontal. You may need to clean the corners out using a hammer and chisel.
- After cutting the cavity, remove the insulation if present and mark out the duct hole centers in accordance with the diagram in fig 13 above.

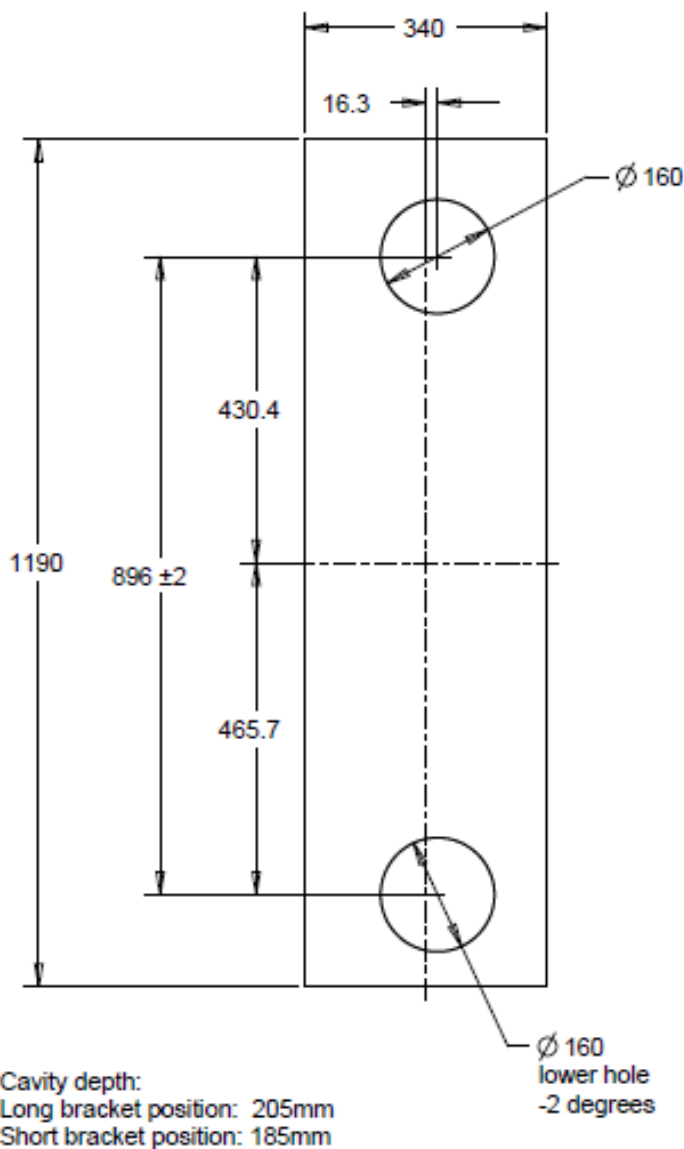


Figure 12 Drilling dimension diagram

9.3 Drilling the 160mm duct holes

To drill the **lower** big hole (**160 mm**), do the following:

1. Drill from inside through both the inner wall across the cavity (if present) and through outer wall at a downward angle of 2 degrees. This is to allow the condensate to drain towards outside.

To drill the **upper** big hole (**160 mm**), do the following:

- 2 Drill from inside through both the inner wall across the cavity (if present) and through outer wall
- 3 Remove dust and other materials from the holes.
- 4 Get a duct pipe (this is the grey PVC pipe) with EPP cover (this is a foam tube) and try if it fits the holes.

9.4 Mount the installation frame

To mount the installation frame, do the following:

- Insert the built-up installation frame into the cavity – chapter 7. The metal edge should be set so that it is flat with the wall all the way around, level and plumb.
- Measure the distance between the front metal edge and the outer wall – there needs to be 21 cm as a minimum. Adjust the setting of the frame if needed.
- If the installation frame needs to be set with the metal edge protruding past the desired finish level of the wall you can make a rectangular frame to make up the difference (something like a picture frame idea)
- After setting the frame at the correct minimum depth use an 8mm drill and drill through the side of the installation frame and into the wall deep enough to sink the wall plugs of the distance screws into. Drill 4 holes 2 on the left and two on the right – 1 towards the top and the other towards the bottom of the frame on each side.
- Screw the distance screw into the wall plug (2 or 3 turns of the screw) and then push the wall plug/screw through the timber frame into and into the wall.
- Tighten the distance screw using an Allen key until the head of the screw is flush with the surface of the wooden frame.



Figure 13 Minimum distance from leading metal edge (surface finish) to the outer wall inside the cavity is 21cm

NOTE – if the cavity is not deep enough then the door for the fresh-r will not properly fit and ventilation will be impeded.

10. Prepare the fresh-r unit

10.1 Cut the duct pipes to length

To cut the duct pipes, do the following:

1. Remove the EPP covers.
2. Cut the upper duct pipe (input fresh air) to the total width of the wall ($D1$) + 25mm
3. Cut the lower duct pipe (output stale air) to the total width of the wall(s) ($D1$) + 65mm

Tip: Use a wide tape or two paper sheets taped together to mark the duct pipes and get a perpendicular cut.

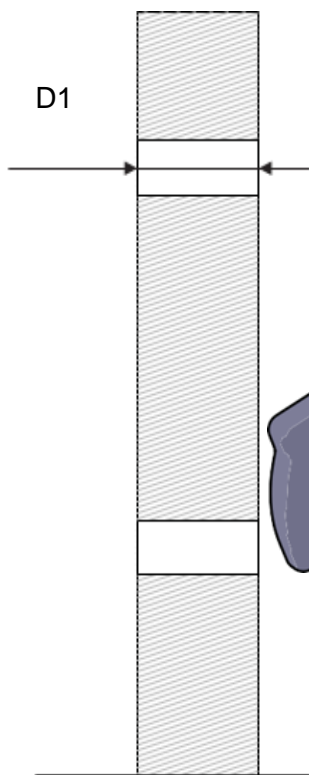


Figure 16 Measuring the wall thickness

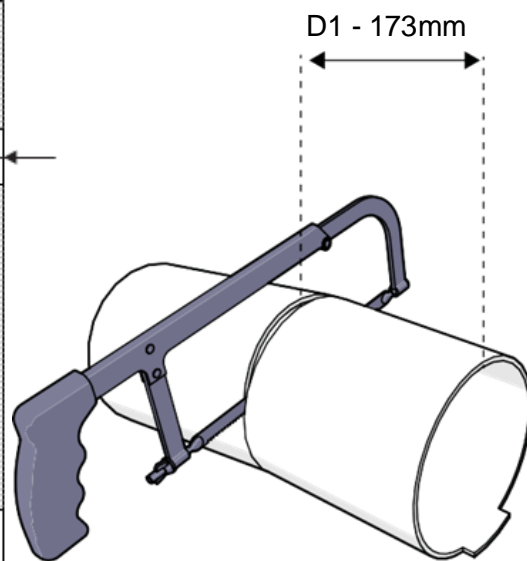


Figure 15 Cutting upper duct to length

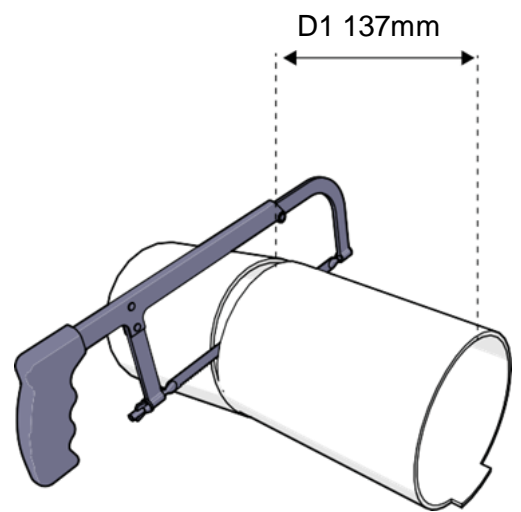


Figure 14 Cutting lower duct to length

NOTE D1 must be measure from the front of the metal edge of the installation frame after final fixing and through to the outer surface of the wall where the grilles will be placed

4. Deburr and chamfer the end of the duct pipes that will be inserted into the Fresh-r. Use a deburring tool, such as a file.



Figure 17 Deburr and chamfer the duct pipes making insertion into the white ring possible

10.2 Install the duct pipes into the fresh-r



Figure 19 DO NOT USE PVC GLUE Top of Fresh-r unit

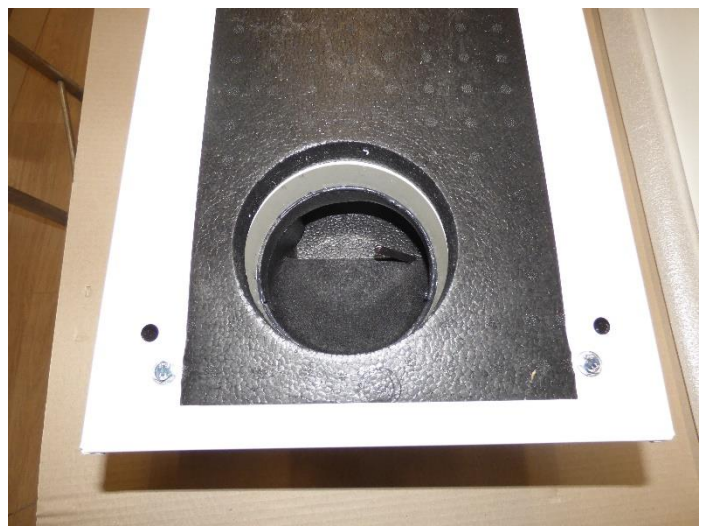


Figure 18 Bottom outlet of Fresh-r USE Hard PVC glue to ensure water tight seal

1. Use PVC glue to seal the lower pipe into the white ring. The lower duct pipe is the condensate drain and needs to be water tight. Apply PVC glue to the last 3 cm of the duct and to the white ring.



Figure 21 Hard plastic PVC glue – critical function



Figure 20 Use plenty – move fast as it sets quickly like contact glue

2. After applying PVC glue, insert the chamfered end into the white ring and firmly push until it completely bottoms out against the black EPP material. You need to move fast because the PCV glue sets quickly. You will not be able to move the pipe at all withing approx. 30 seconds – so do not pause during this operation.

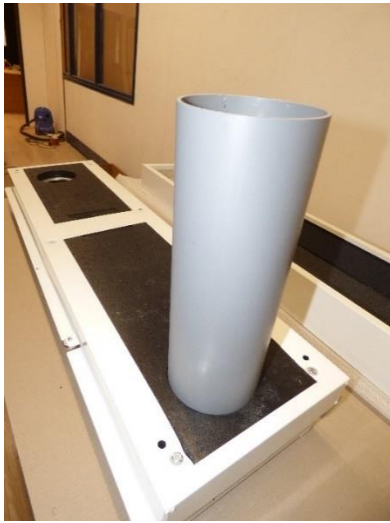


Figure 23 Insert the duct into the white ring



Figure 22 Slide the insulating cover over the duct pipe – use Polymax to make an air tight connection

3. Install the upper duct pipe in the same way. Do not glue the grey pipe into position but do glue the insulating cover in the same way as the lower duct pipe.
4. Apply polymax around the outside of the insulator so that it will form an air tight seal.
5. Bend the 4 mounting brackets so that they fall flat across the front edge of the installation frame.



Figure 24 Internal wall sealing

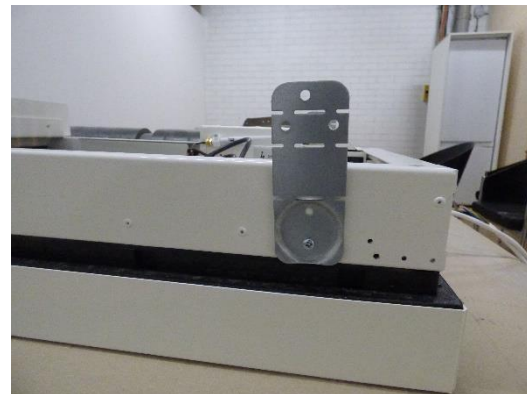


Figure 25 Mounting bracket as shipped

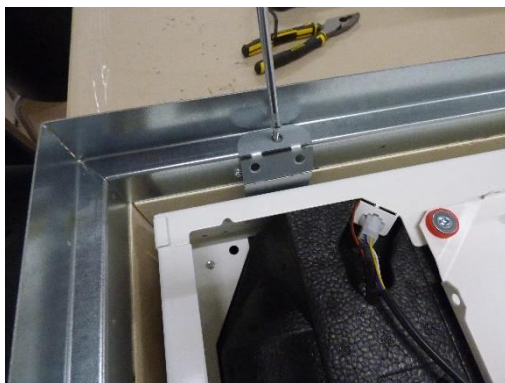


Figure 27 Mounting bracket formed and fixed with screw in dedicated hole



Figure 26 Lower end of fresh-r properly secured

11. Install the fresh-r

11.1 Mount the unit onto the wall

1. Lift the fresh-r complete with fitted duct pipe and insulators to the prepared wall.
2. Correct orientation is with the electrical control panel upper left.
3. Guide the duct pipes into the 160mm holes in the wall
4. Guide the electrical cable taking care not to trap it.
5. Make the electrical connection - this can be to a junction box within the wall or a surface mounted junction box depending upon you electrical design
6. Press the fresh-r into the installation frame and secure each mounting bracket with a screw in the dedicated holes that are provided in the metal edge.



Figure 30 Fresh-r mounted inside installation frame



Figure 28 Fresh-r everywhere mounted inside installation frame



Figure 29 Fresh-r everywhere with duct connection and closed top

11.2 Extract duct connection

There are many configurations for the extract duct connection and this will depend entirely on the routing that is specific to your ventilation design in conjunction with the building design with reference to joists, open spaces and ceilings etc. See collage of examples below. The unit needs to be installed first and then to run the ducting from the unit to the extract points. All joints must be glued air tight. All ducting running through a cold zone needs to be insulated to avoid heat loss and condensation.

11.3 Examples of extract duct connections



Figure 32 Fresh-r standard duct adapter 204 x 60mm



Figure 31 Low loss bend fitted directly onto adapter



Figure 35 Square to round (125mm) fitted directly to adapter



Figure 34 Square to round adapter with 125mm round connected



Figure 33 Square to round adapter with 125mm round connected – side view

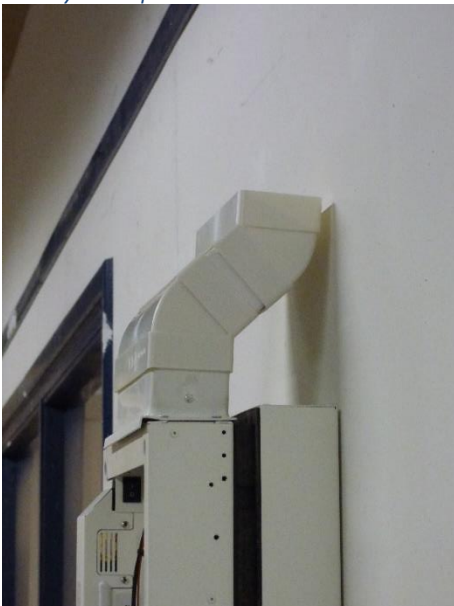


Figure 38 Chicane bend using 2 x 45



Figure 37 90 degree bend using 2 X 45



Figure 36 Adapt and Radial 3 X 75 connection piece direct to adapter flange



Figure 40 Adapt and Radial socket RDA 3 x 75



Figure 39 Adapt and Radial socket RDA 3 x 75

11.4 Insulate between the gap between the fresh-r and the installation frame

Now that you have installed the fresh-r unit as well as the extract ducts (everywhere version only) the gap between the fresh-r unit and the installation frame needs to be closed with PUR foam. See figure 42

To do this you need to insert the PUR foam nozzle into the gap and all the way to the bottom (8cm) see figure 41. The red arrow indicates where the PUR injection nozzels needs to reach and the black arrow points to a depiction of how much fill is required.

The objective is to provide sufficient PUR fill to close the gap and also to insulate the front metal part of the unibody from the cold. Failure to prevent the insulate properly will result in the entire metal work of the fresh-r becoming very cold in the winter and a lot of heat loss will take place.



Figure 41 Insulate between fresh-r and installation frame

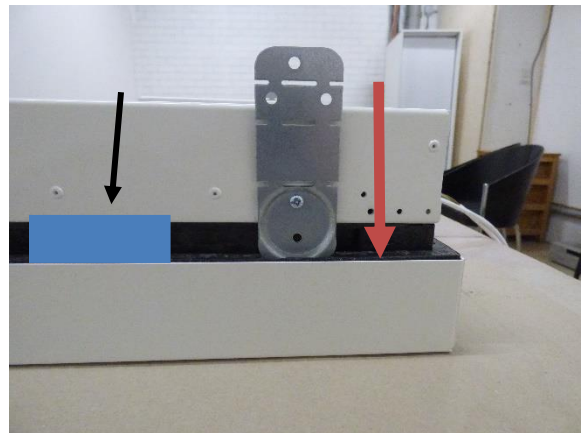


Figure 42 Depth of PUR injection

11.5 Install the door on to the mounted fresh-r

The door has been configured in the factory to open in the direction chosen at the time of purchase. This orientation can be changed on site by swapping the hinges around.

To mount the door, follow the steps below:

1. Lift the door frame assembly on to /in to the metal edge frame
2. Open the door and line up the holes along each side. Fix with the screws provided



Figure 43 Fit door and frame into installation frame



Figure 44 Secure door frame at each side with screws provided

12. Installing the outer grilles

12.1 Trim the pipes to length if needed

The top pipe does not need to protrude

The **lower pipe** needs to protrude by 20mm so that the condensate will fall away from the wall surface and into the catch tray of the grille

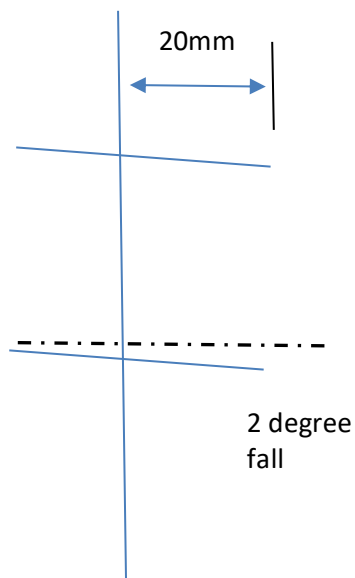


Figure 45 diagram of lower pipe – 2 degree fall and 20mm protrusion

12.2 Seal the outer wall for both the upper and the lower duct pipe

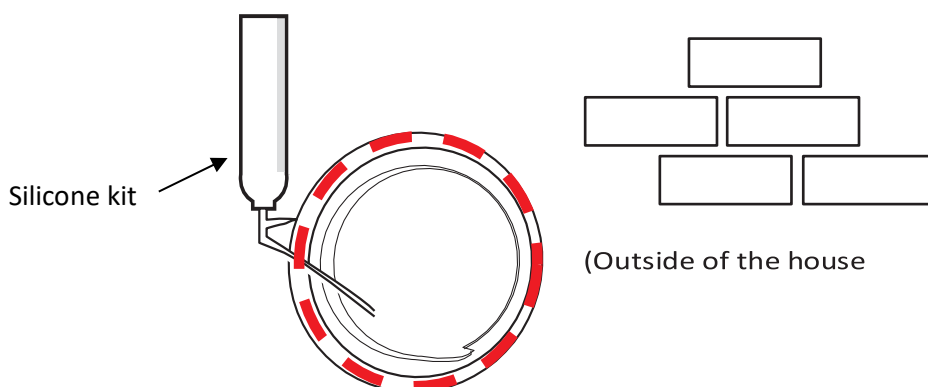


Figure 46 seal the Outerwall

13. To install the grilles do the following:

The grilles are 198mmX 195mm, which gives an allowance of 35mm to mask core drill misalignment.

1. Mark the best center line out that allows the grilles to properly cover the duct pipe and core drill hole keeping the grilles in vertical alignment for best visual appearance.

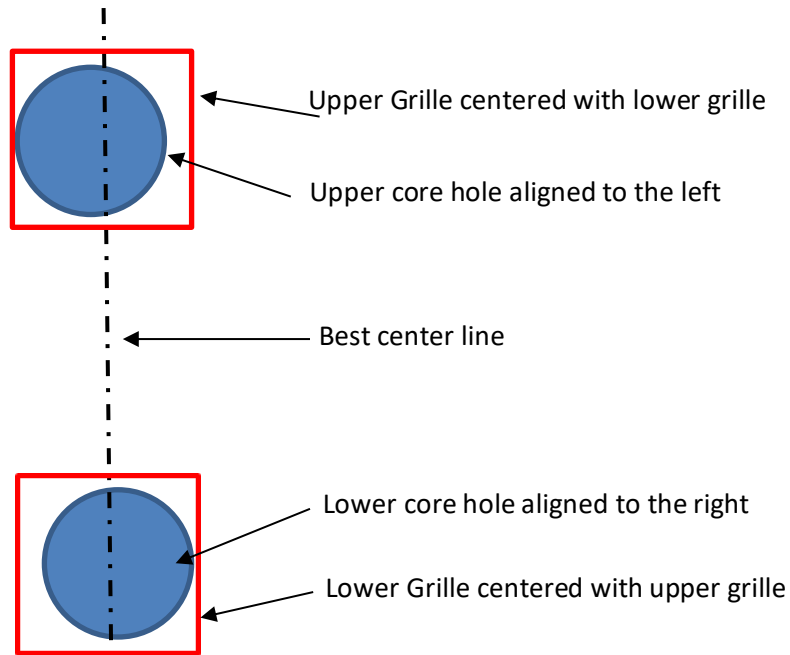


Figure 47 Outer grill alignment

2. Mark the holes for the raw plugs and drill 4 X 6mm @50mm depth holes for each grille

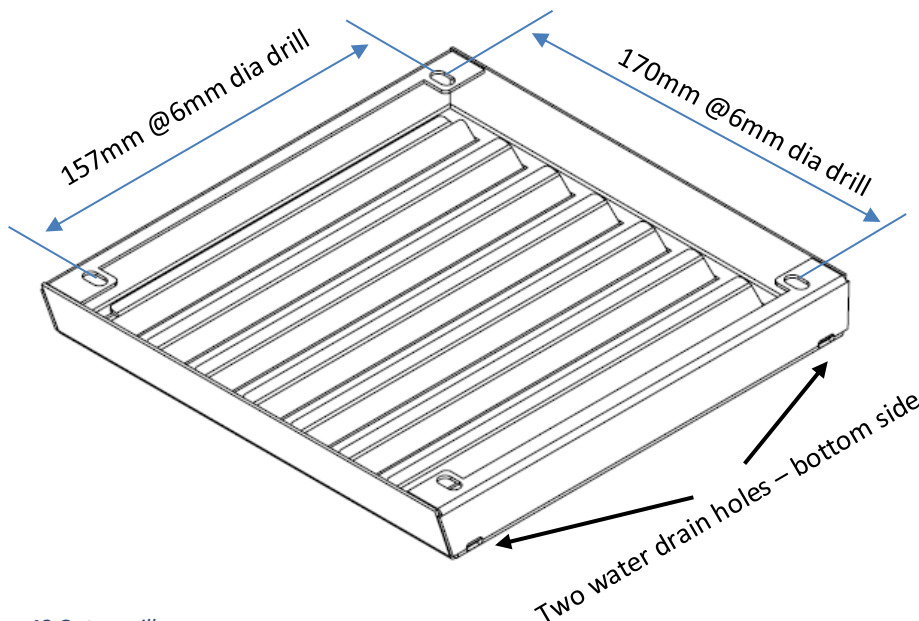


Figure 48 Outer grille

3. Insert the raw plus that have been supplied
4. Present the upper grille with the water holes at the bottom and fasten with the 4 screws (supplied). Do the same for the lower grille and ensure that the duct pipe is not so long that it prevents the grille from sitting flat on the wall.

14. Connect the fresh-r electrically and test its functionality

DANGER

- Connecting the fresh-r to the mains electricity supply must be done by a qualified electrician.
- Risk for electric shocks or electrocution. Turn off the mains electricity supply in the distribution box before connecting the fresh-r electrically.

14.1 Do the following:

5. Turn off the main electricity supply in the distribution box before attempting to wire in the fresh-r.
6. Make the electrical connection while the fresh-r is turned OFF. The electric cable location is on the left-hand top.
7. Turn the main electricity supply ON again at the distribution box.
8. Turn the fresh-r ON and wait for approximately 1 minute while the unit starts up.

If you see three illuminated lights and notice fans running, the unit is properly functioning.

If not:

Check the main electricity supply. If the product still does not work, turn the unit OFF and contact your supplier.

15. Connect the fresh-r to the internet

By connecting the fresh-r to the internet you will benefit from automatic software updates. You will also have access to data graphs showing actual performance values of the air temperature and quality.

To connect your fresh-r to the internet do the following.

1. Switch power of the fresh-r OFF and switch the power ON again.
2. After the unit has restarted - Press the middle button (increase fan speed) for approximately 15 seconds and release. You should hear a chime indicating that the unit is now in Wi-Fi access point mode.

The following actions must be done with your smartphone, laptop or tablet.

Do the following:

1. Start your device and go to settings.
2. Select Wi-Fi.
3. Select WiFly-EZX-XX from the list of Wi-Fi connections. Your device will now connect to the fresh-r Wi-Fi – no password is required,
4. Open the phone/laptop web browser and type 192.168.1.1 and press enter - The Microchip settings page opens.

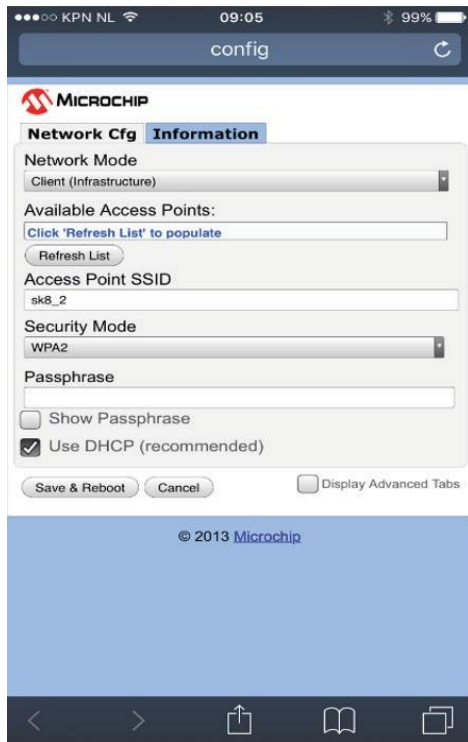


Figure 49 Microchip config page

5. Press refresh list – all available networks will be listed. This may take 1 or 2 minutes.
6. Select your routers SSID
7. Enter the passphrase of the Wi-Fi SSID (found on the back of the router)
8. Press save and reboot – wait for the dialog requesting confirmation that you want to exit configuration and select OK.
9. Power off and on the Fresh-r and it should now be connected to the internet to receive updates and provide user data.
10. Send the serial number of your fresh-r (eg. E:237411/120001 – can be found on a silver label on the left-hand side of the unit) to sales@fresh-r.eu and request for user name and password for the www.fresh-r.me web application in which you will be able to check performance of the fresh-r.

16. Installation checklist

Use the following checklist after you have completed the installation. For a properly functioning fresh-r please make sure you can answer all questions with 'yes'.

Check the following	More information	Yes	No
Is the bottom duct pipe water tight with PVC Glue			
Are the duct pipes sealed against the EPP back cover?			
Are the duct covers sealed against the EPP back cover?			
Is the air gap between fresh-r and installation frame properly closed with PUR foam?			
Are the duct pipes properly sealed at the outside wall?			
Does the unit sound normal?			
Does the door open and close properly?			
Is air blowing from the bottom part of the door?			
Is the CO2 indicator glowing green and if not is it green after 1/2 hour?			

17. Specifications

Type	In-The-Wall
Serial nr.	Can be found at the left side, above the middle
Flow range	0-120 m ³ /hr
Working range	-20°C to 50°C
Max. power consumption	5,3 Watt at 25 m ³ /hr
	41,2 Watt at 120 m ³ /hr
Avg. power consumption	Approx. 8 – 10 Watt
Sound dB(A)	25 dB(A) at 35 m ³ /hr
	45 dB(A) at 120 m ³ /hr
Heat recovery	87% Efficiency
Control	automatic (on basis of CO ₂ ppm)
Certification	CE
Weight	Less than 20 kg
Dimensions	H = 1195 mm W = 375 mm D = 205 mm
Capacity	up to 120m ³ /hr
Continues heat recovery at subzero temperatures	Yes, with automatic defrost mode
Fully automatic operation	Self-regulating flow control based on CO ₂ , RH

18. Declaration of conformity

as required by EC Directive

We

The manufacturer: Fresh-r BV
Address: Weleweg 417, 7548 PK Enschede
The Netherlands

declare under our sole responsibility that the following product

E equipment: Air handling unit with heat recovery
Brand name: Vaventis
Model/type: fresh-r

is in conformity with the following Directives

2006/95/EC Low Voltage (LVD)

the product bears the CE label



.....
Woen Van Andel (Managing Director)

Weesp, August 1st,

