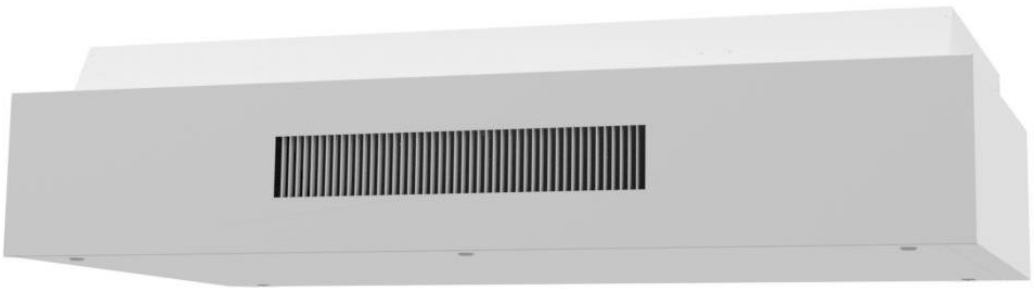
User manual and installation guide

CA350 CA550 CA850 CA1200



Exchanger:

Rev. 2024.01.17

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2. General information

2.1. Foreword

This assembly and operation manual contains technical information as well as information regarding the installation and maintenance of a ComfortAir unit.

2.2. Fields of application

ComfortAir is designed for comfort ventilation in areas such as cafeterias, offices, meeting rooms and training- and educational facilities.

2.3. Incorrect application

ComfortAir is not intended for spot extractor systems and must not be used for purposes other than those stated under Fields of Application.

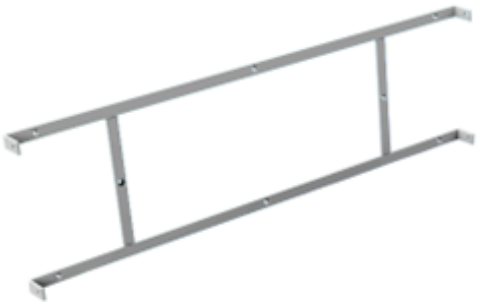
2.4. Scope of delivery

ComfortAir is delivered with the following components as standard:

1. ComfortAir unit
2. Mounting bracket

Additionally, the following items are available as optional add-ons:

3. TX-electronics Control panel



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1.

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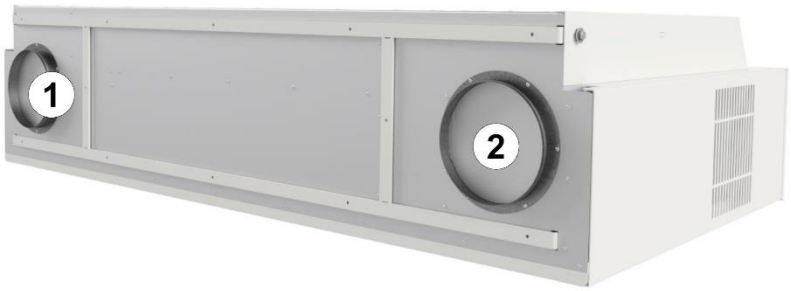
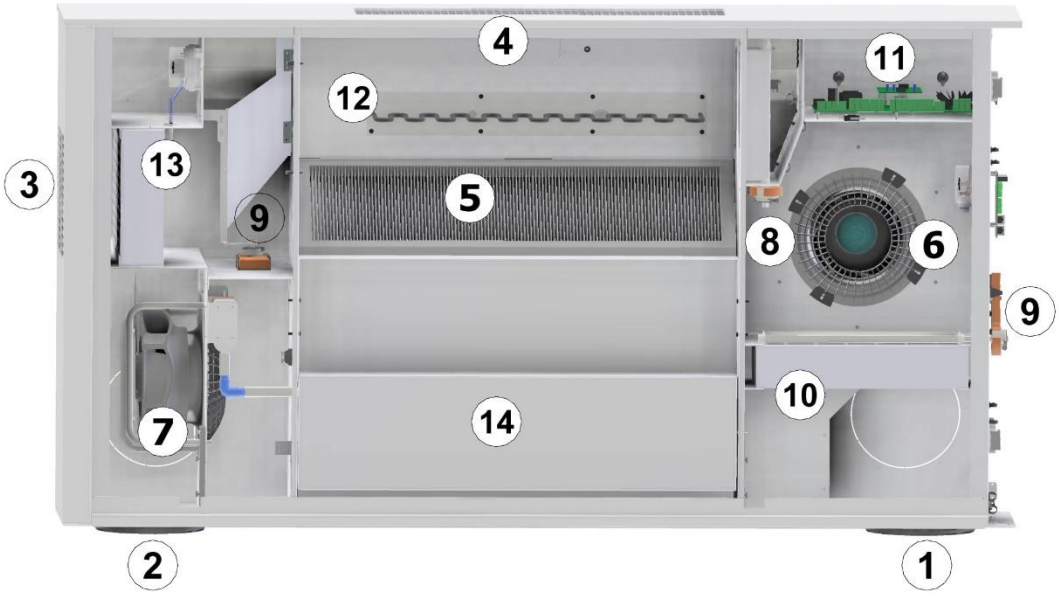
2.5. Main components:

1. Intake duct
2. Exhaust duct
3. Exhaust grille
4. Supply grille
5. Counterflow heat exchanger
6. Supply fan
7. Exhaust fan
8. Bypass motor
9. Damper motor
10. Supply Filter
11. Main PCB
12. Electric heating element (option)
13. Exhaust Filter
14. Condensate tray





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2.6. Function of the unit

ComfortAir is a decentralized ventilation system with built-in heat recovery designed for ventilation in educational facilities, office environments, and similar settings.

ComfortAir utilizes a counterflow heat exchanger (5.). The system efficiently utilizes the already heated indoor air to warm up the fresh outdoor air by transferring the heat energy to the supply air in the heat exchanger.

Airflow: The supply fan (6) draws fresh outdoor air through the intake duct (1) and supply filter (10), and blows the air through the heat exchanger (5), from where the air is blown through the supply grille (4) and evenly distributed into the room. The exhaust fan (7) draws room air through the exhaust grille (3), through the exhaust filter (13) and the heat exchanger (5), and exhausts the air through the exhaust duct (2).

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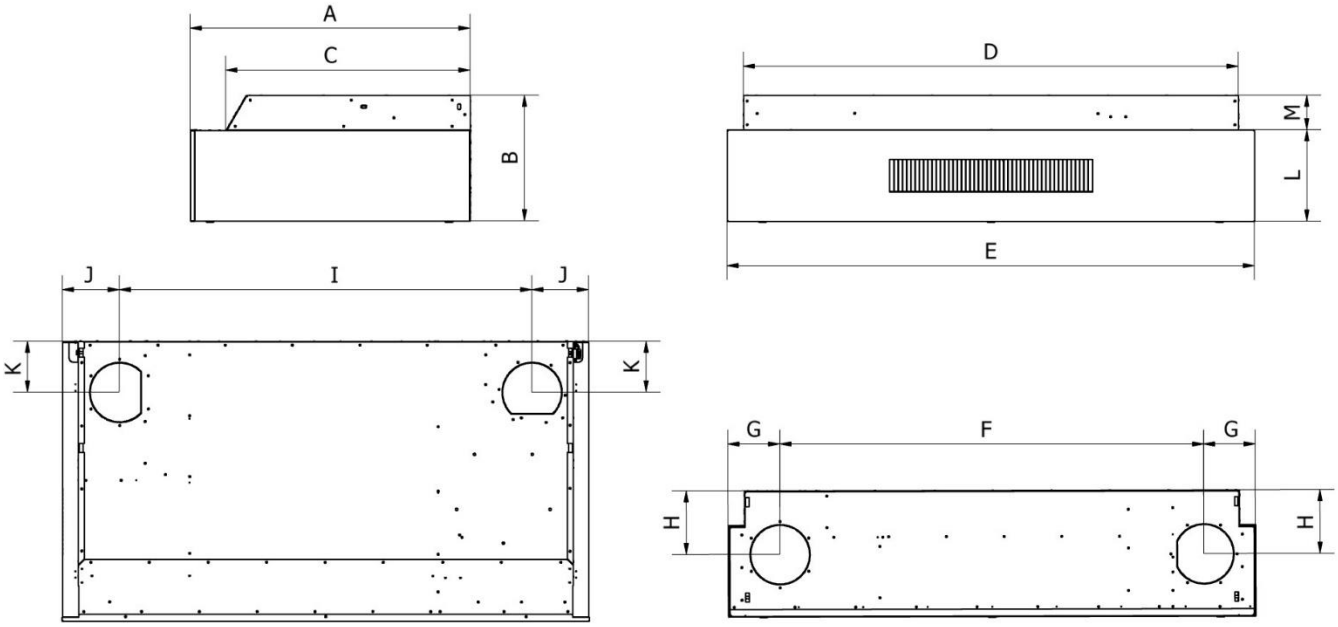
3. Installation

3.1. Dimensions

Dimension(mm)	CA350	CA550	CA850	CA1200
A	801	930	1057	1213
B	356	422	480	630
C	714	812	930	1129
D	1212	1643	1918	2020
E	1322	1751	2003	2131
F	1016	1407	1628	1675
G	153	172	188	228
H	172	212	252	352
I	978	1369	1578	1595
J	170	188	210	266
K	149	169	195	248
L	259	304	356	431
M	101	118	127	202



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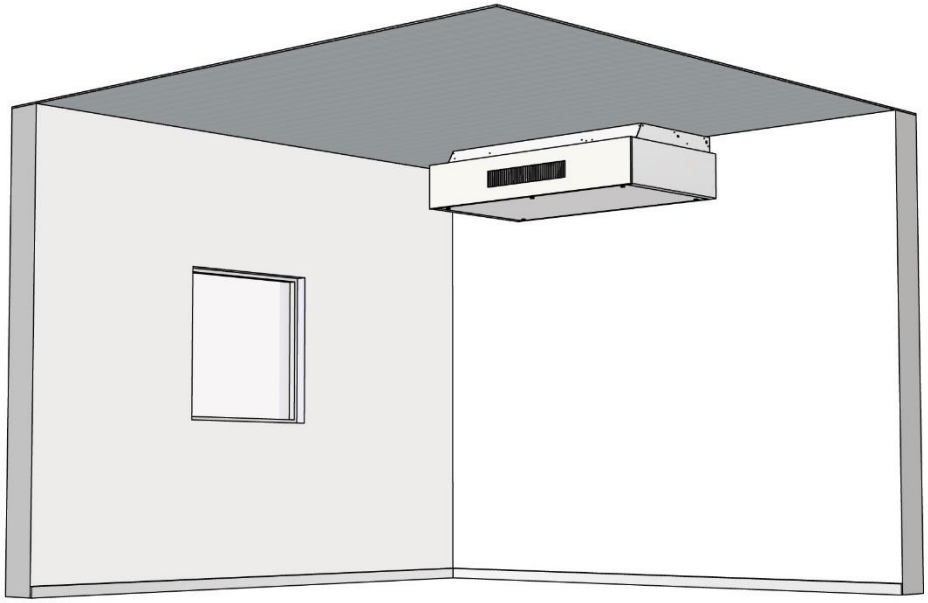
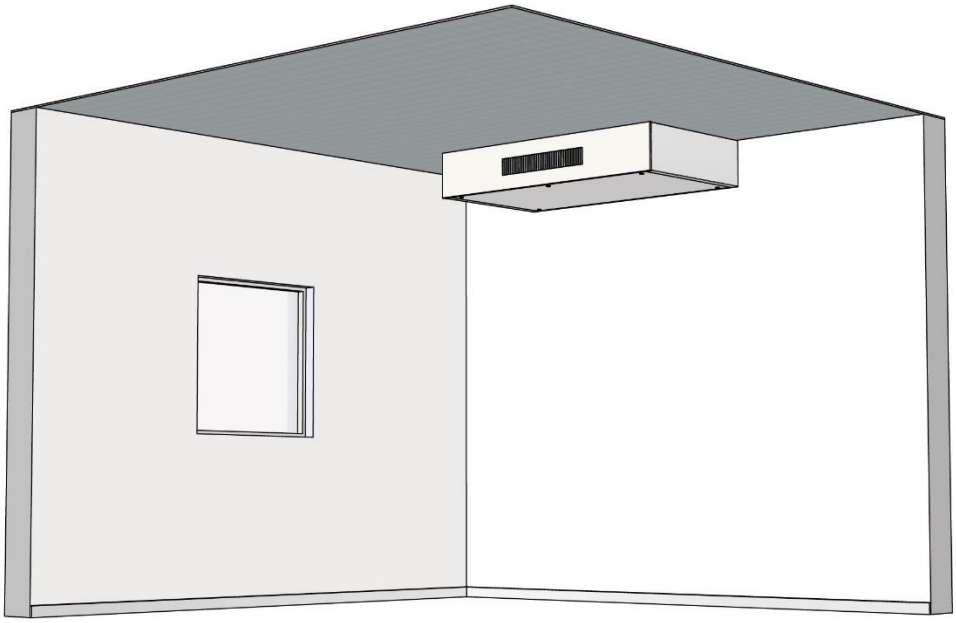
3.2. Placement

The unit is typically installed on the wall just below the ceiling, as shown below.



With the ComfortAir series, it is also an option to install the system in suspended ceilings to alter its visual expression in the room.



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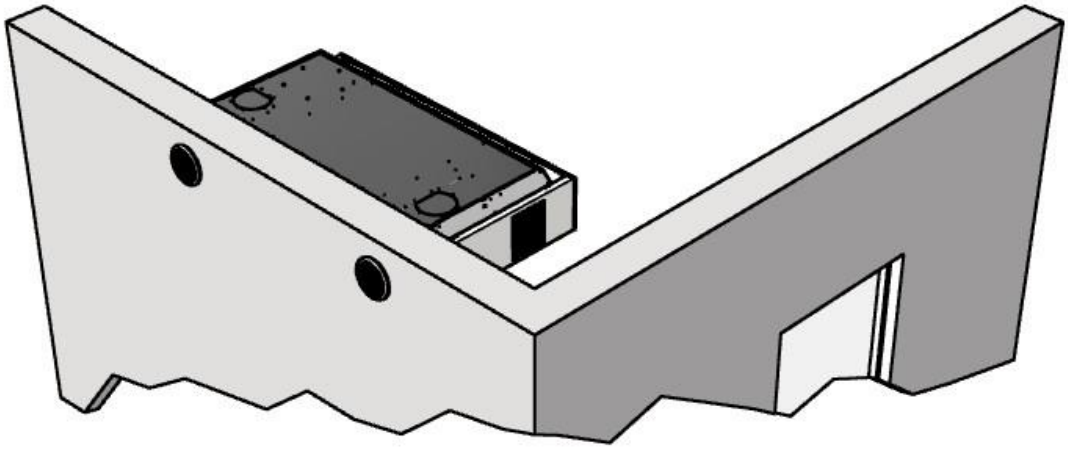
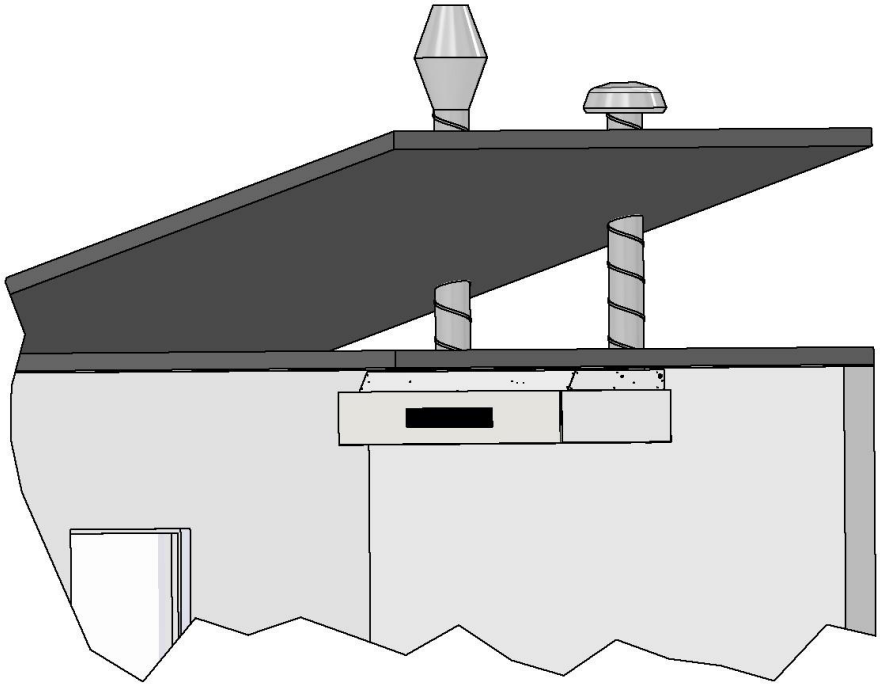
When installing ComfortAir, it is possible to create openings either through the wall, through the roof, or a combination of both.





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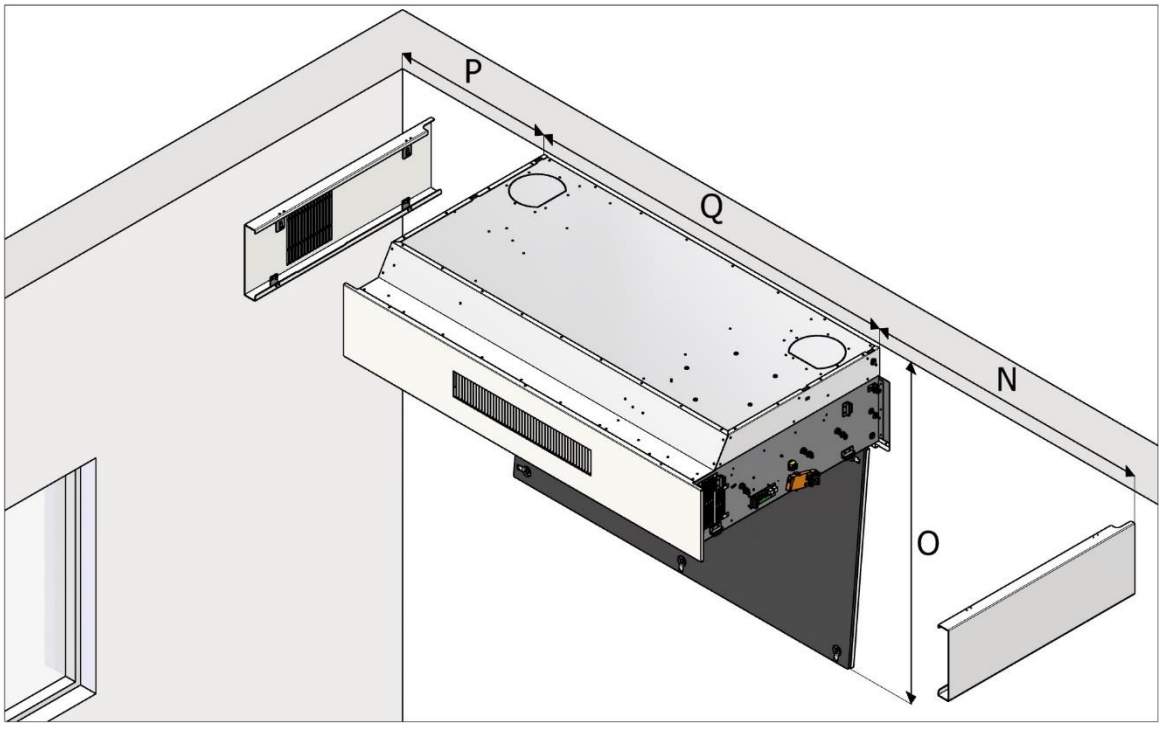
3.3. Minimum distances

The minimum distance that the system should have from other walls, cabinets, or similar objects is described in the table below. Please note that the distance is not the same for both sides, as it is necessary to provide optimal space for the exhaust grille.

- *N* describes the minimum required distance to be able to remove the decorative side panels of the unit.
- *O Describes the minimum required distance from the ceiling to be able to open the service doors of the unit.*
- *P Describes the minimum distance from the exhaust grille to the wall.*
- *Q Describes the width of the installation without the side panels against the wall.*

The sum of N, P, and Q describes the minimum distance required between 2 walls or other features, for the system to function optimally and be accessible.

Dimension [mm]	CA350	CA550	CA850	CA1200
N	300	300	300	300
O	1122	1322	1035	1245
P	600	600	600	600
Q	1212	1643	1918	2020



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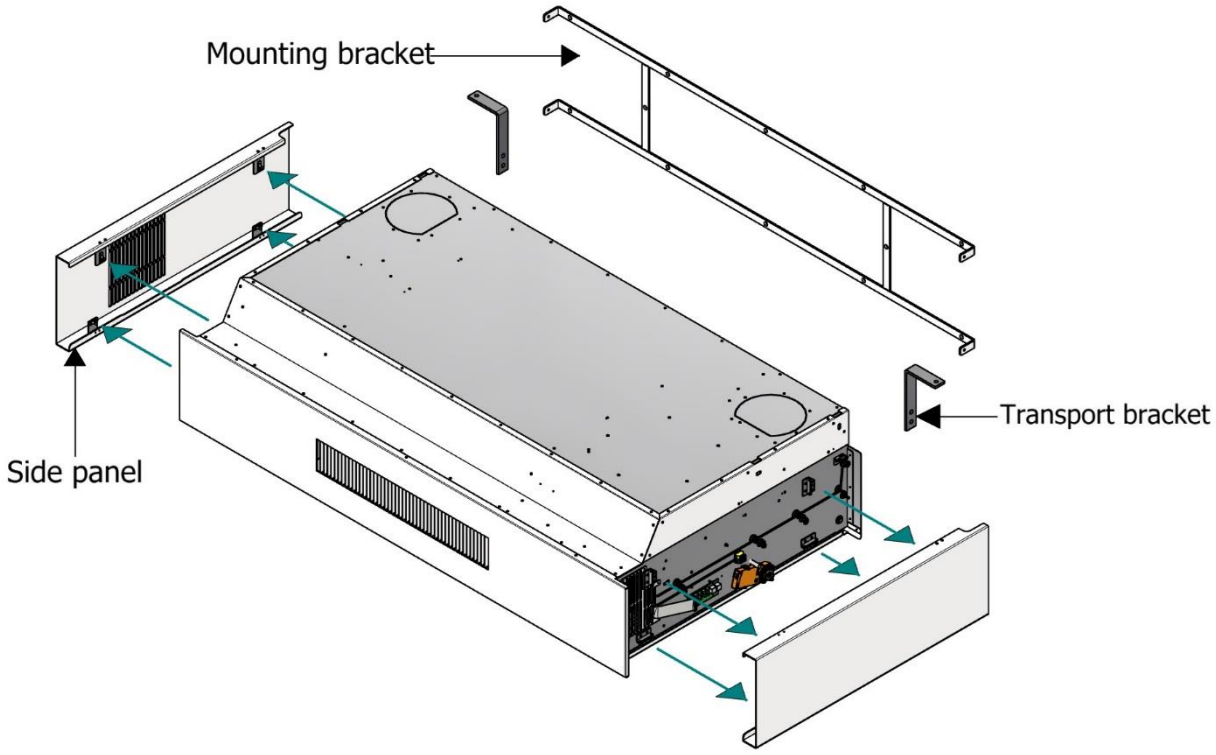
3.4. Readying unit for installation

The side panels of the unit are secured with roller catches and are removed by pulling them out and away from the unit. After that, the 4 screws that hold the mounting bracket and transport brackets are loosened. The mounting bracket and transport brackets are then removed.



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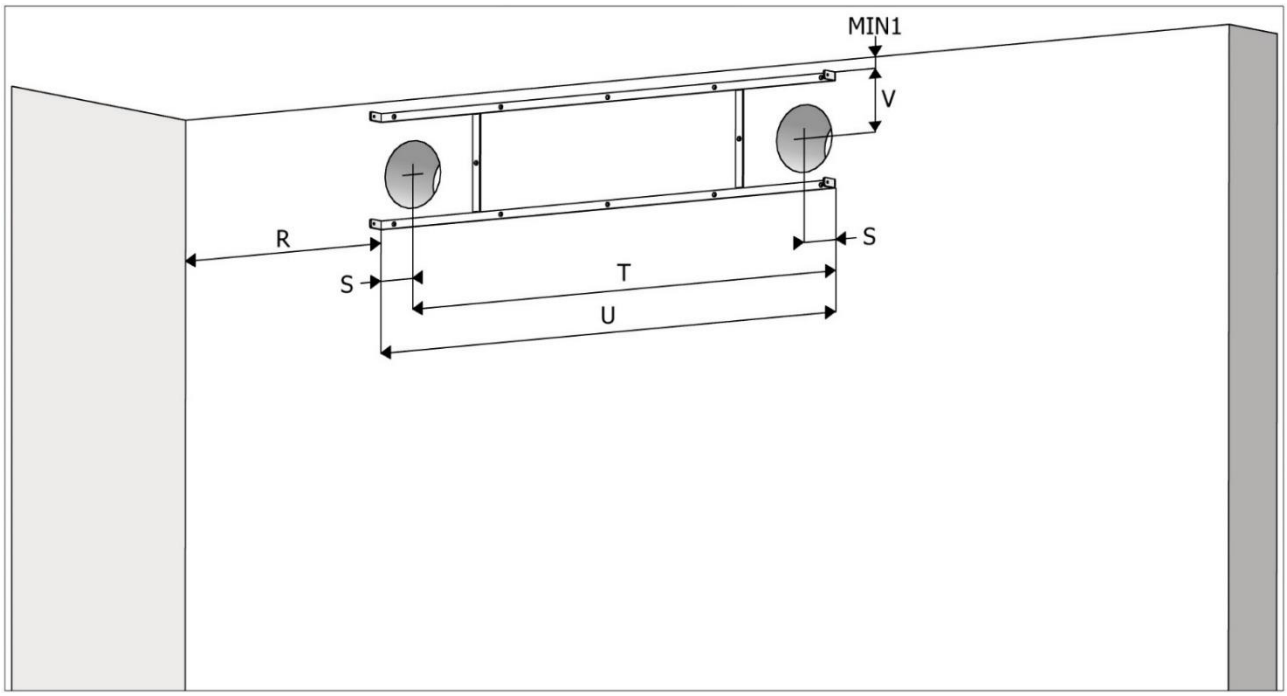
3.5. Pipe penetrations and installing the mounting bracket

The pipe penetrations and mounting bracket need to be positioned correctly relative to each other, and the measurements in the diagrams in this section describe this relationship. Whether the penetrations are made first or the mounting bracket are installed first can depend on the circumstances of the specific installation

Dimension [mm]	CA350	CA550	CA850	CA1200
MIN_1	30	28	28	26
MIN_2	25	25	23	23
R	604	604	607	606
S	94	114	138	167
T	1110	1521	1766	1842
U	1204	1635	1904	2008
V	132	187	227	329
W	113	133	163	207
X	1091	1505	1741	1802
Y	125	145	172	225

It is important to adhere to the measurements indicated as "**MIN**" in the drawings, to be able to place the unit on the mounting bracket.



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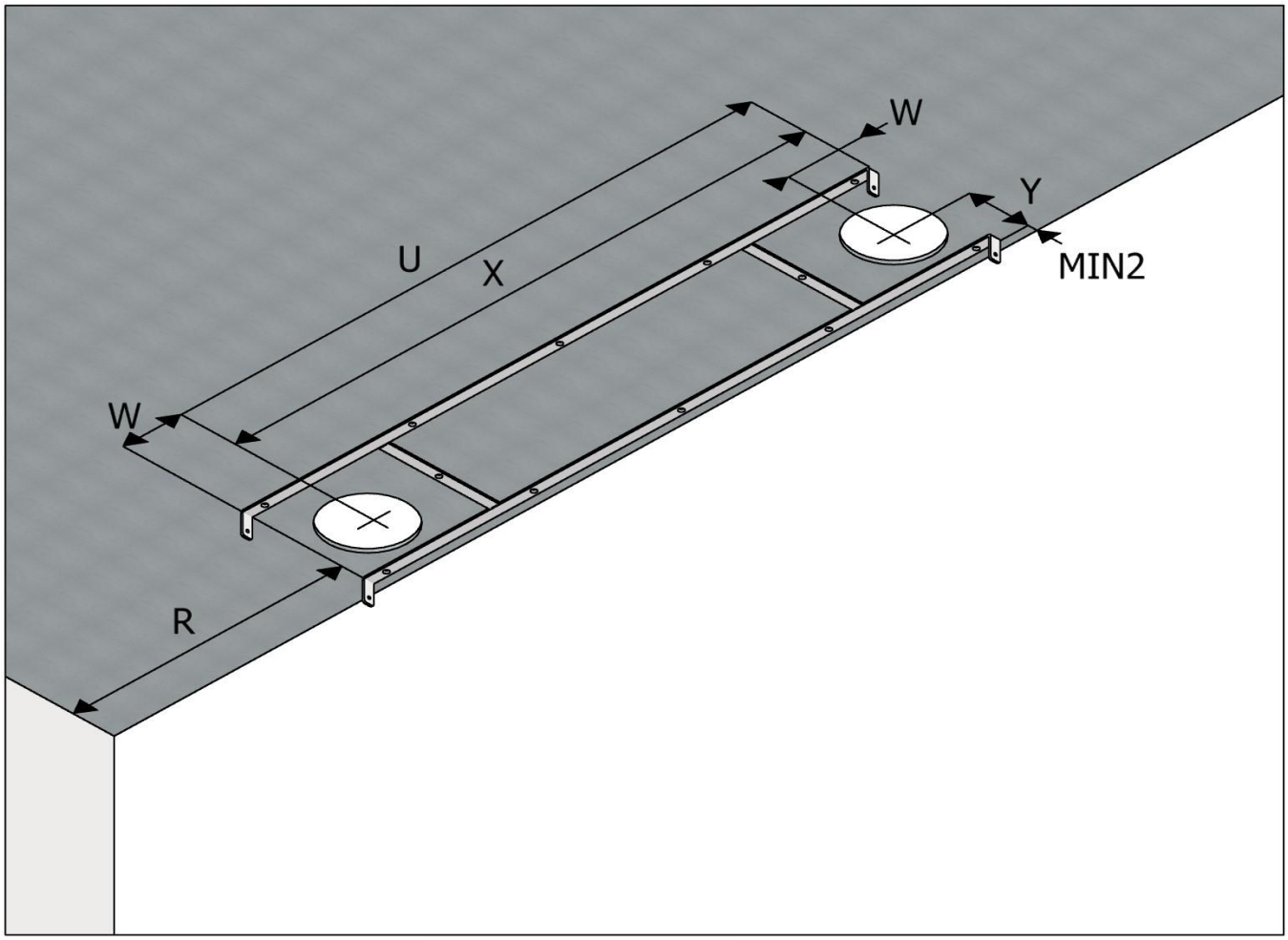

The mounting bracket is positioned level and securely mounted on the wall or ceiling, depending on the chosen installation method. Two holes, 5 to 10 mm larger than the diameter of the pipe (Pipe diameter), are drilled through the wall or ceiling.

Dimension [mm]	CA350	CA550	CA850	CA1200
Pipe diameter	160	200	250	315

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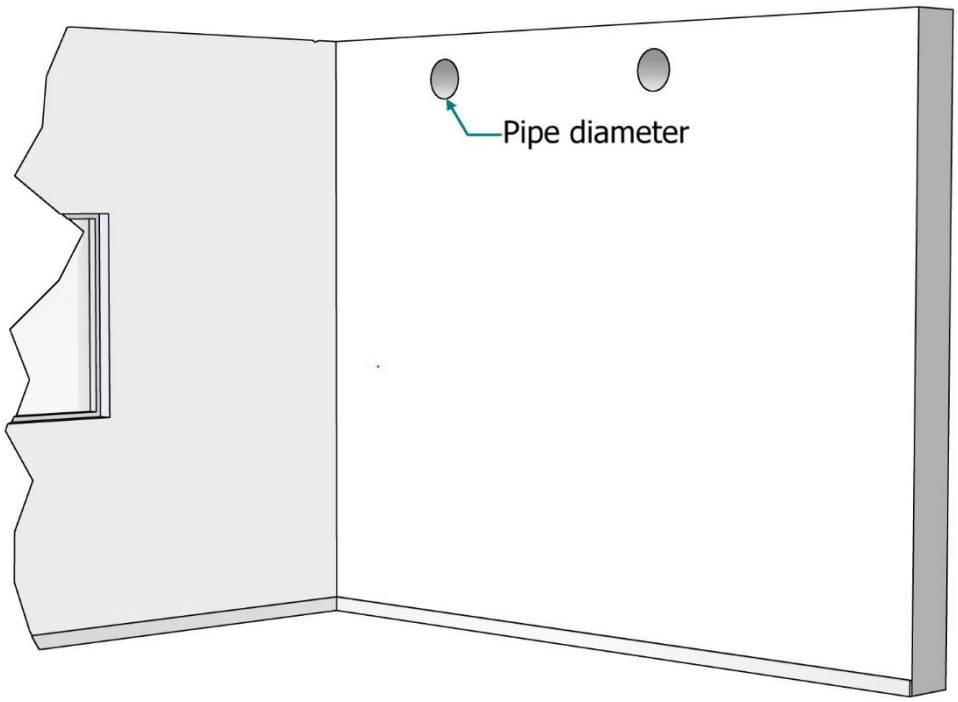

Pipe penetrations in the wall must have a 1-2% outward down slope towards the exterior wall to prevent any potential driving rain from entering the unit.

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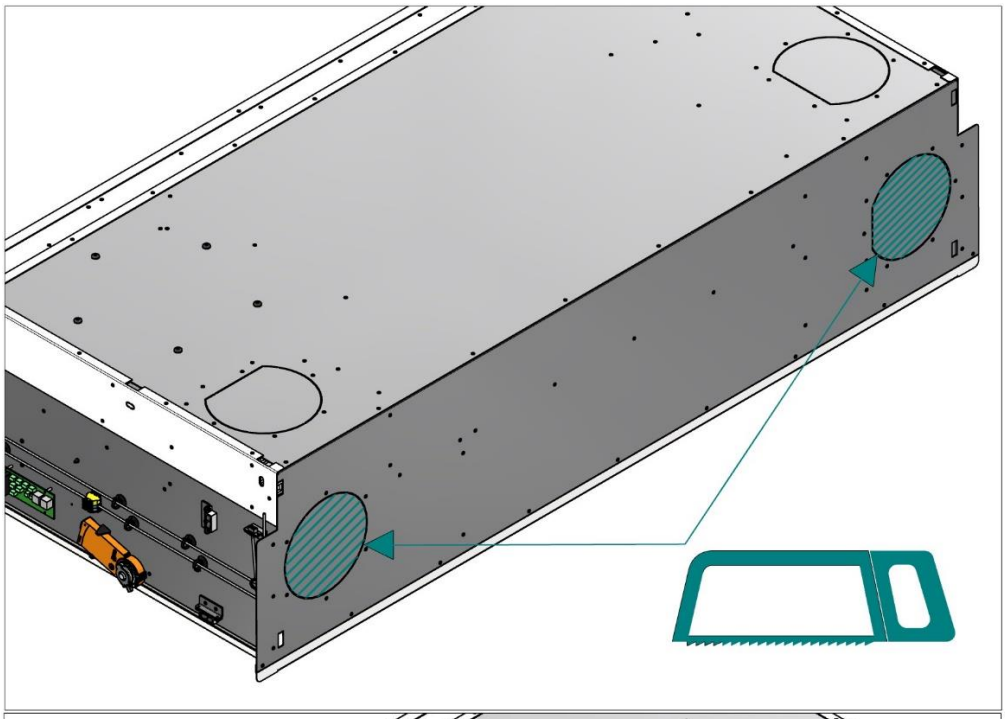
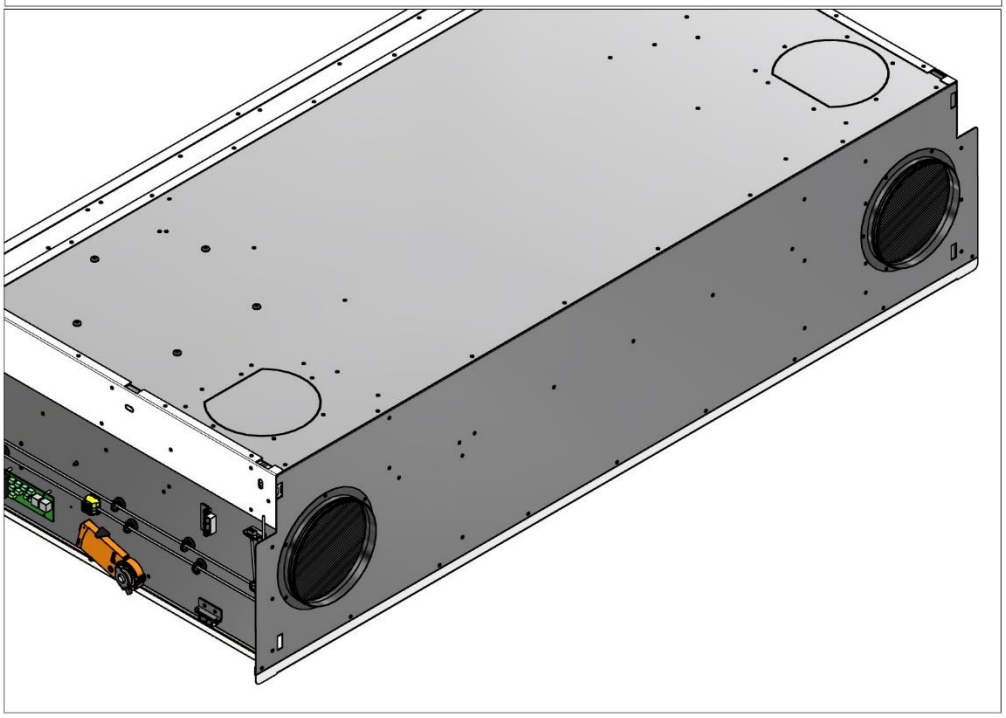
The 2 punch-outs in the unti that match the selected pipe penetration combination are cut out, and the included pipe flanges are installed.





When installing pipe flanges, it is important to ensure a tight connection between the pipe flanges and the unit.

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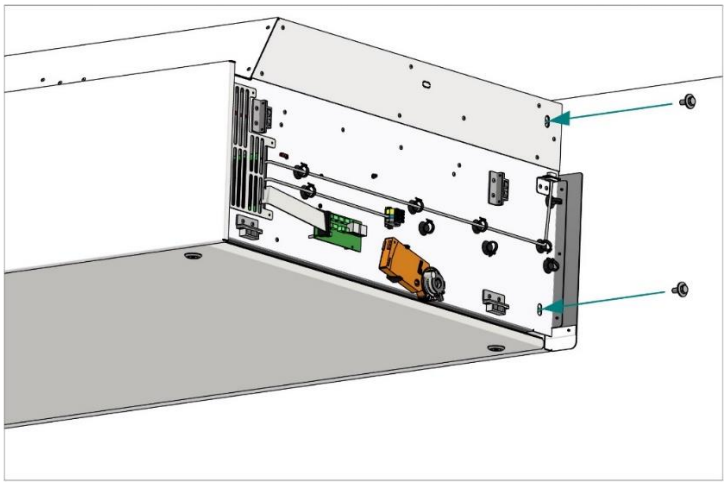
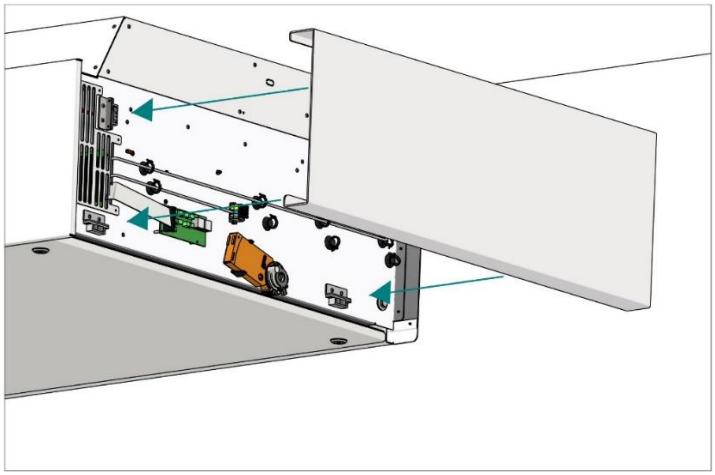
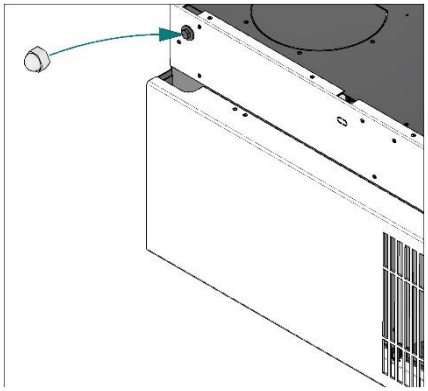
The unit is lifted onto the mounting bracket and fixed in place using the 4 included bolts.



The side panels are clicked back into place in the roller catches of the unit.



The included nut protectors are mounted on the two visible mounting bolts.



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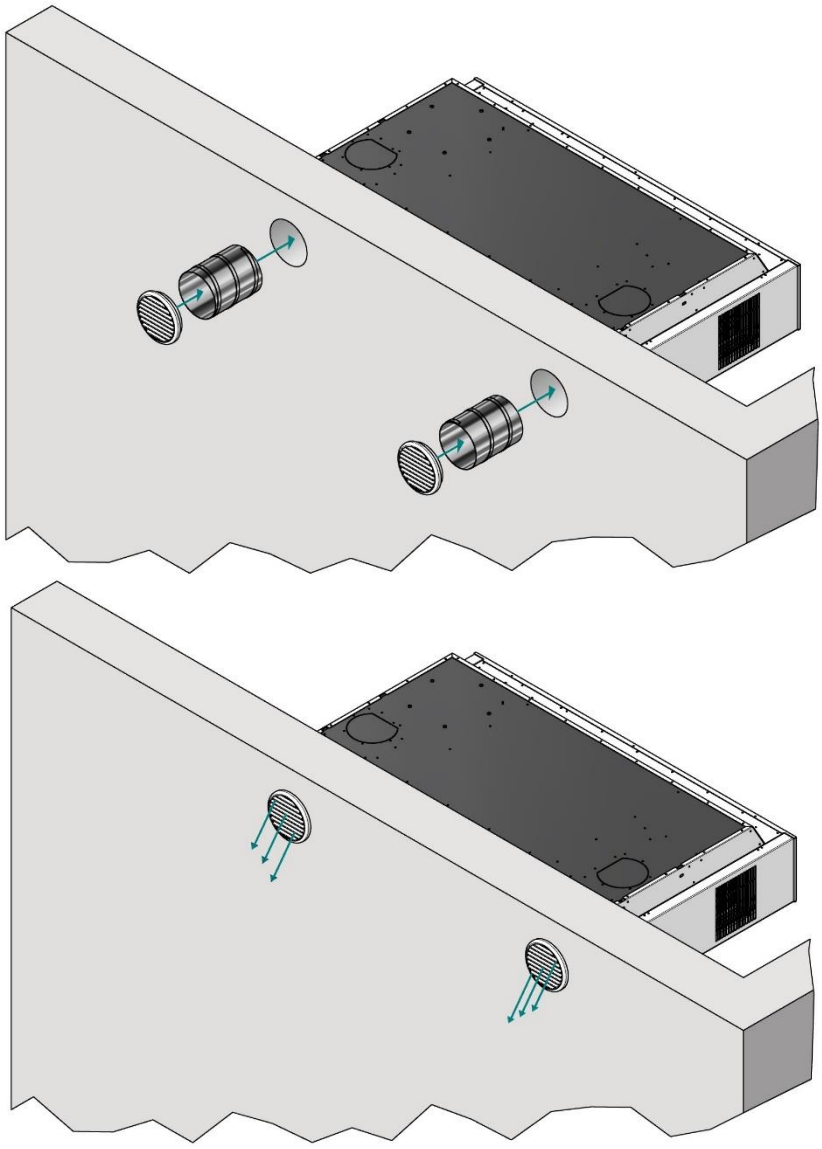
Pipes are installed in the pipe penetrations.
For wall mounting, the 2 facade grilles are installed with the airflow direction downwards.



The pipes must not be twisted or pressed against the pipe flanges on the unit using excessive force, as it will result in increased noise levels.
It is adviced to seal around the pipes in the pipe penetrations to avoid unnecessary drafts through the conduits.

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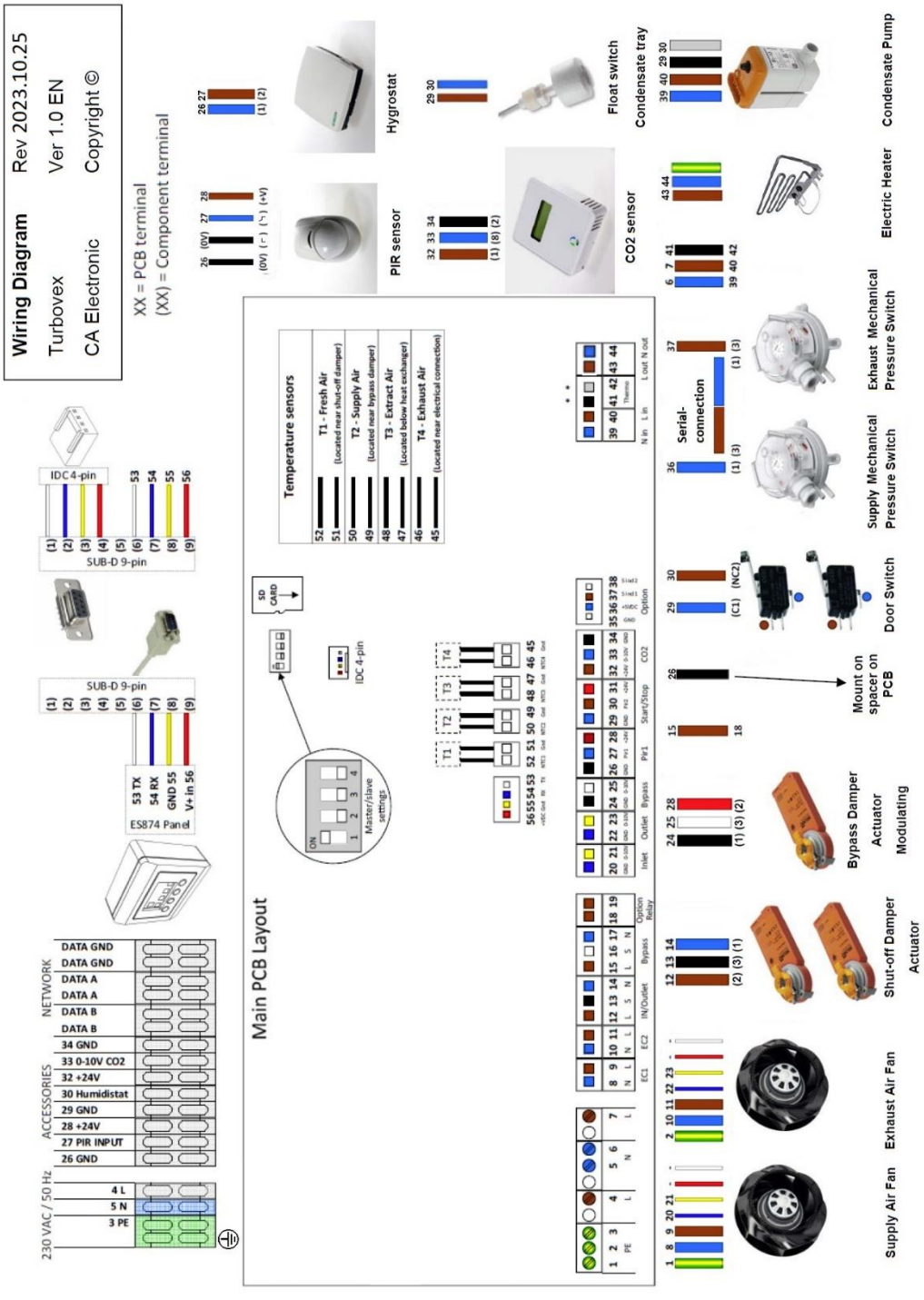
4. Electrical connection

ComfortAir is connected according to the Electrical wiring diagram

Electrical connection must be carried out by a licensed electrician.



An isolator switch must be installed with the unit.

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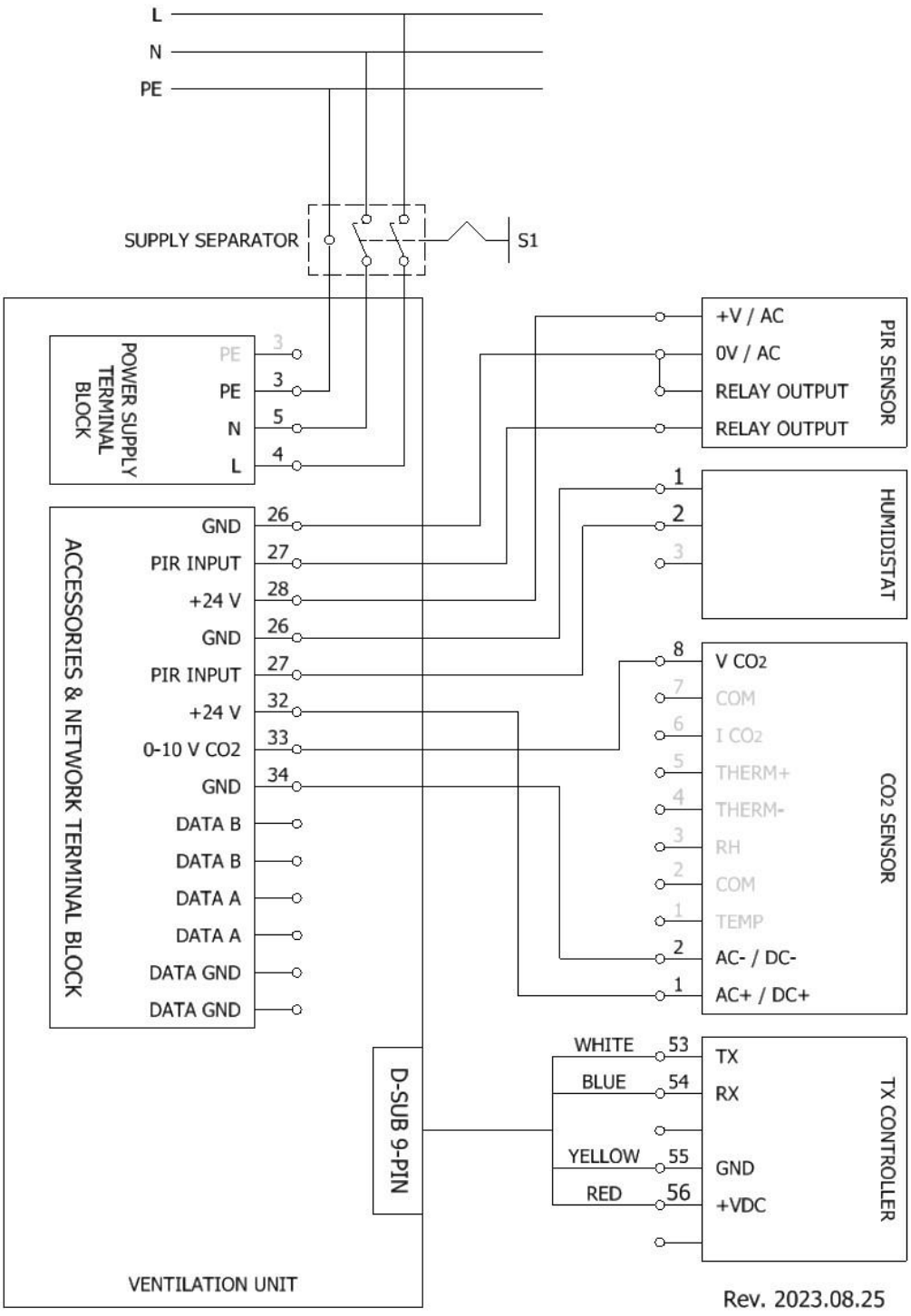
5. Electrical connection of accessories

ComfortAir accessories is connected according to the wiring diagram below.

Electrical connection must be carried out by a licensed electrician.



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6. Operation

6.1. Regulating the airflow

Refer to the user manual for the TX electronics control panel for more information.

The unit has 2 operating modes. A day mode, which provides the airflow specified by the end user of the unit and a night mode, which operates at a slower speed to conserve energy during the night.

Note: When regulating the airflow using a CO2 sensor, the system automatically adjusts the fan speed up or down based on the need for the room.

6.2. Regulating heating.

Refer to the user manual for the TX electronics control panel for more information.

The desired temperature is set on the control panel. It is advisable not to set the temperature higher than the room temperature. The temperature of the supply air should be 2-3 degrees Celsius below the room temperature to achieve optimal air circulation in the room.
When the unit is stopped, the last temperature setting is automatically saved, and the unit will start with that setting when it is turned on again.

The unit features a modulating bypass system, which directs the air around the heat exchanger according to the outside temperature.

6.3. Master / slave

If the unit is set up as master or slave, further information can be found in the User Manual for Master/Slave operation.

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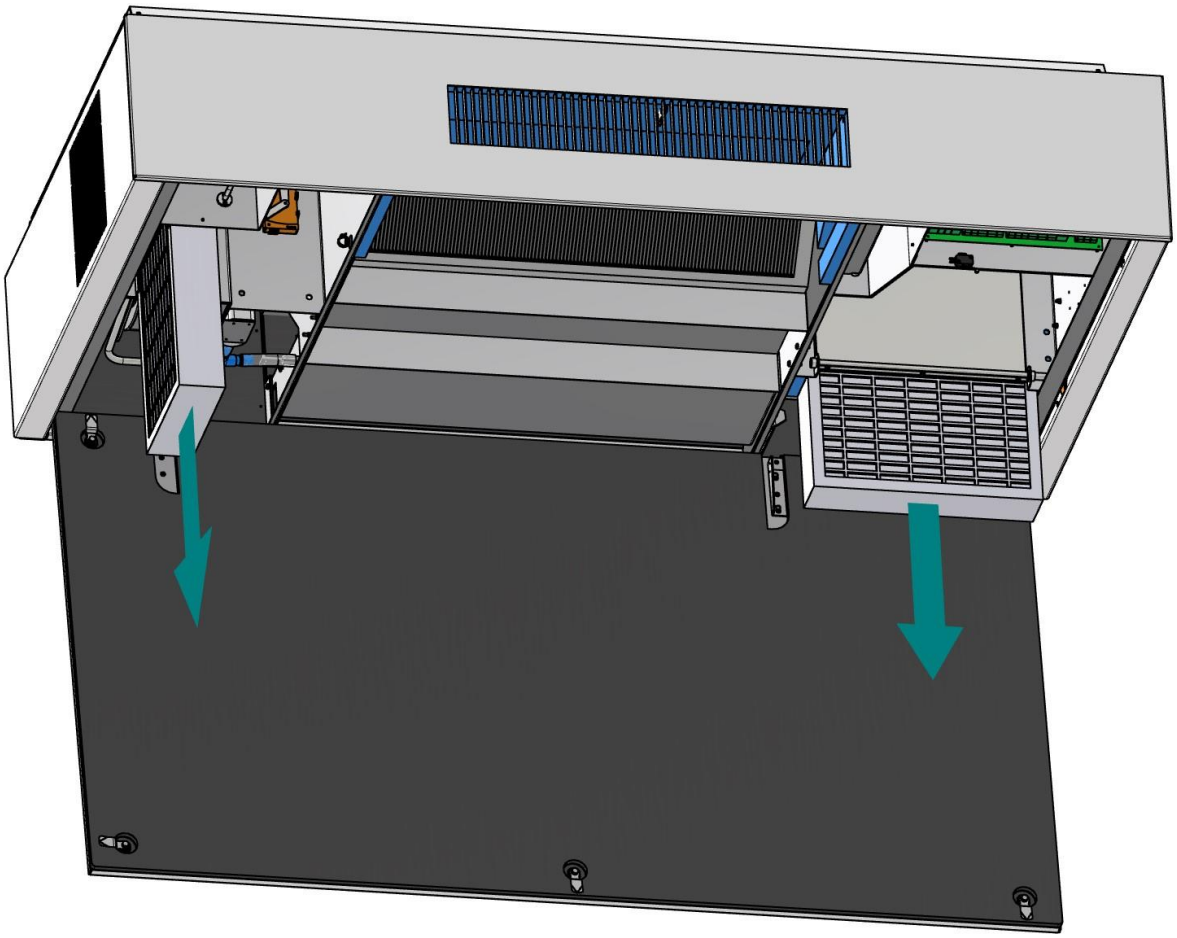
7. Maintenance

7.1. Changing filters

In ComfortAir, the filters are located as shown in the image below. The CA350 and CA550 models have one large service door, while the CA850 and CA1200 have two smaller ones. The service doors are opened by turning the locks a quarter turn with an 8mm hex key.

In units with one large service door, it is important that the locks closest to the wall are opened first and closed last.
Be aware of the weight of the service doors when opening them.

The filters should be replaced when a filter alarm is triggered or as needed.



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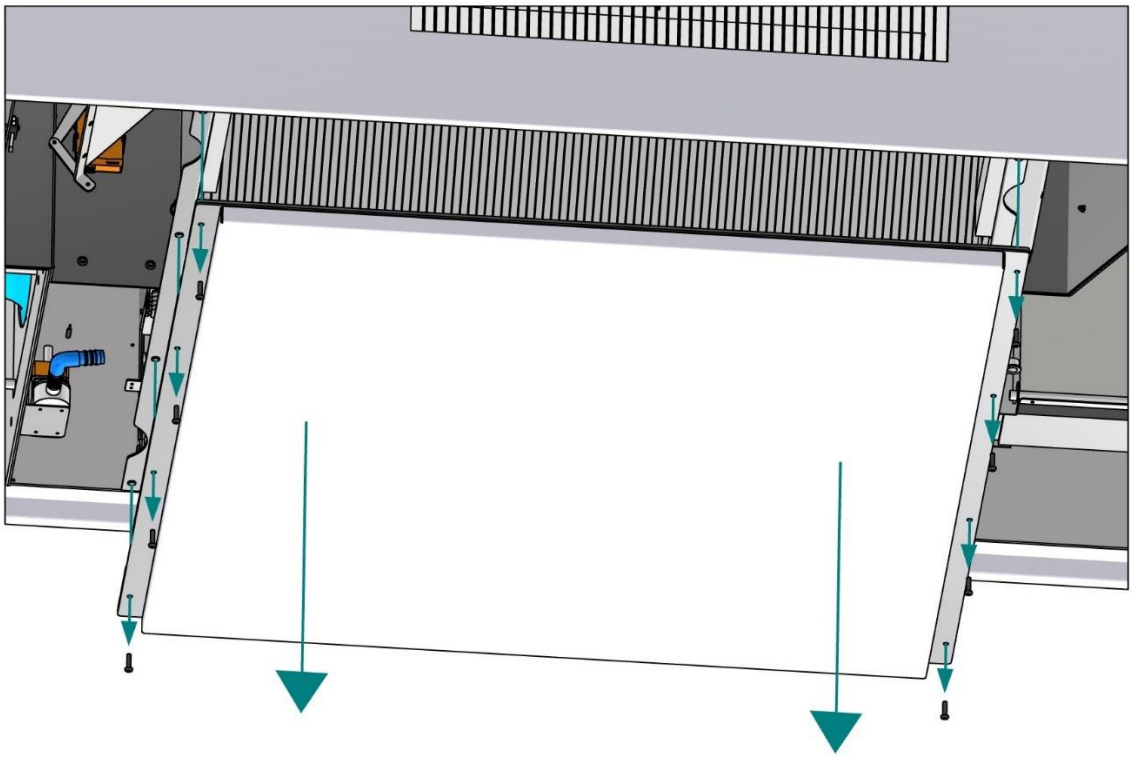
7.2. Cleaning the heat exchanger

The heat exchanger should be cleaned as needed.

Turn off the isolator switch when performing maintenance in the unit.

On the CA850 and CA1200 models, the center console between the service doors needs to be removed to perform maintenance on the heat exchanger. This is be done by unscrewing the screws as shown in the image below.

The center console is only attached to the unit using screws, and there is a risk of causing injury if it is not supported during disassembly.



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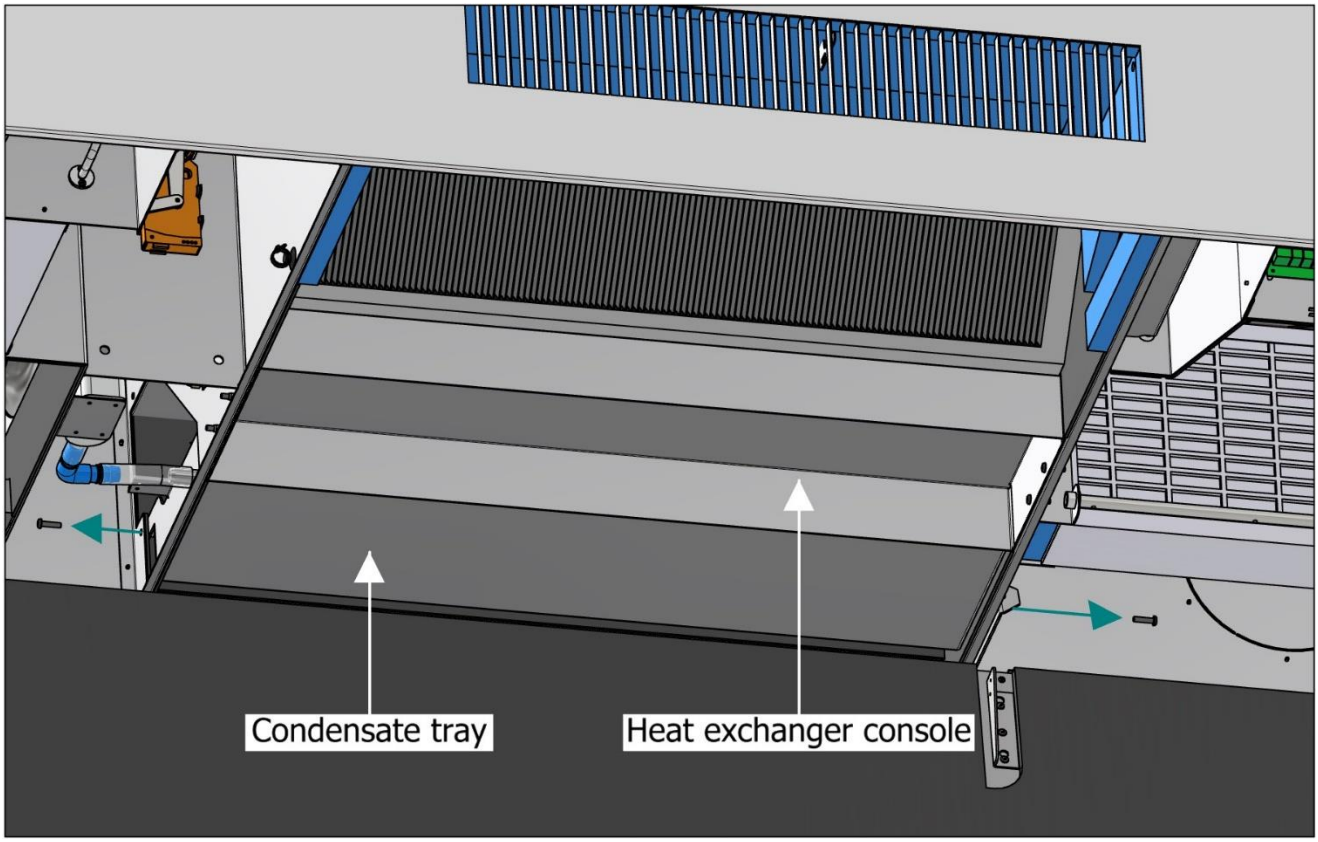
The condensate tray is removed by removing the 2 screws shown in the picture below. The condensate tray is pushed in under the exchanger console and is taken out by pulling it back towards the wall and downwards.



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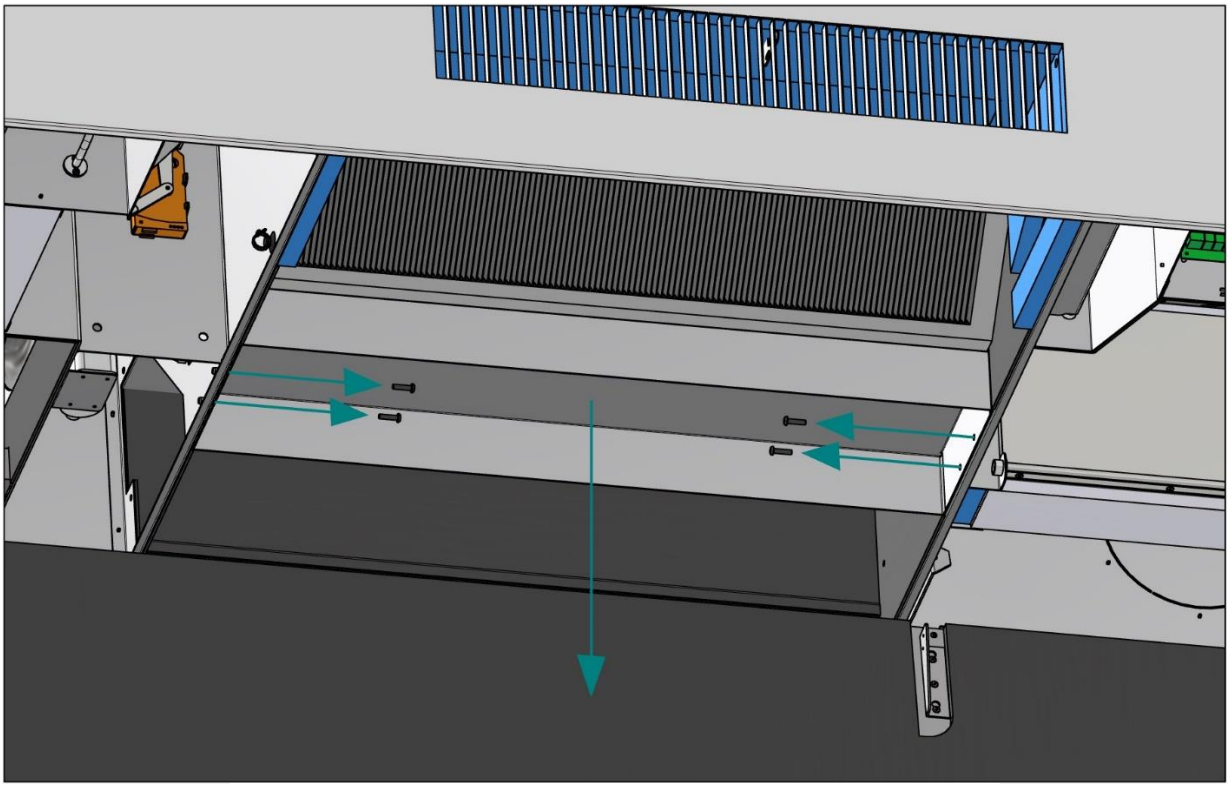
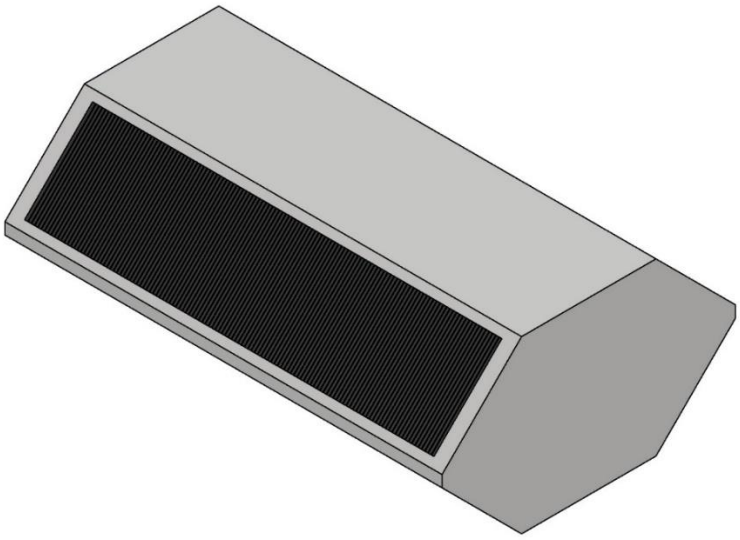
The heat exchanger console is removed by unsrewing the 4 screws as shown in the picture below.

It is crucial to support the heat exchanger when removing the heat exchanger console, as the heat exchanger console holds the heat exchanger in place within the unit. Without proper support, there is a significant risk of the heat exchanger falling down, which can result in serious personal injury.





The heat exchanger can be cleaned by vacuuming it and/or blowing through it with air. Once the cleaning is complete, the heat exchanger is reinstalled in the unit.

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8. Technical specifications

	CA350	CA550	CA850	CA1200	Unit
Dimensions:					
Length	1322	1751	2003	2131	mm
Width	801	901	1057	1213	mm
Height	356	422	480	630	mm
Diameter, pipes	160	200	250	315	mm
Mass	60	85	140	186	kg
Volumen at 30 dB(A)	243	350	515	955	m³/h
Volumen at 35 dB(A)	337	560	813	1198	m³/h
Volumen at forced operation	545	760	1256	1800	m³/h
Filter type	ePM10 50%	ePM10 50%	ePM10 50%	ePM10 50%	Filter class
Power consumption					
30 dB(A)	26/0,26	37/0,31	47/0,41	65	Watt/Ampere
35 dB(A)	43/0,37	83/0,67	85/0,7	120	Watt/Ampere
Forced operation	153/1,2	179/1,34	315/2,4		Watt/Ampere
SFP-value					
30 dB(A)	385	380	328	245	kJ/m³
35 dB(A)	459	533	376	350	kJ/m³
Forced operation	1010	848	903	603	kJ/m³
Power supply	1 x 230V +N+PE/50Hz	1 x 230V +N+PE/50Hz	1 x 230V +N+PE/50Hz	1 x 230V +N+PE/50Hz	Volt/Hz
Heat recovery effiency at 30 dB(A)	84,5	86	84,6	88	%
Heat recovery effiency at 35 dB(A)	81,5	83	81	86,6	%
Electric heating element	500	500	1000	1250	Watt

The sound level is expressed in the unit dB(A), measured at a distance of 1 meter from and 1 meter below the air inlet grille.

The Specific Fan Power (SFP) describes the relationship between consumption and volume, and it is expressed in the unit kJ/m³.

The heat recovery efficiency of the heat exchanger is expressed in percentage (%) and is describes the ratio between the achieved temperature difference and the maximum achievable temperature difference.

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9. Scheduled maintenance inspections

9.1. Maintenance inspections

It is adviced to have regular maintenance inspections performed on ComfortAir units. The intervals between inspections depend on the specific unit's operation, but typically, there should not be more than 1 year between regular inspections.

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9.2. Maintenance checklist

Maintenance report for ComfortAir

TURBOVEX

Unit batch No. _____

Costumer _____

Adress of installation _____

Phone _____

Contact person _____

Phone _____

Task	completed	Changed	Comments
Visual inspection of unit			
Inspection of supply fan			
Inspection of exhaust fan			
Inspection of supply damper motor			
Inspection of exhaust damper motor			
Inspection of bypass damper motor			
Inspection of wiring and cable passages			
Inspection of Temperature sensor T1			
Inspection of Temperature sensor T2			
Inspection of Temperature sensor T3			
Inspection of Temperature sensor T4			
Conrol panel function motorspeed			
Motorsuspension /rubber suspension			
Inspection of CO2 sensor			
Inspection of PIRsensor			
Inspection of adjustment of Pressure guard1			
Inspection of adjustment of Pressure guard2			
Adjusment of time and calendar function			
Supply filter change			
Exhaust filter change			
Cleaning of unit internally			
Cleaning of heat exchanger			
Other			

Date of maintenance: Maintenance performed by: _____

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10. Declaration of conformity

The declaration of conformity can be found in the download section at

https://www.turbovex.dk/fileadmin/Dokumenter/Overensstemmelseserklaering_CA350__550__850__1200.pdf

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