

Installation, Operation and Maintenance Manual

TX 250A	TX 500A	TX 750A	TX 1000A
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2.0 General information

2.1 Introduction

This user manual contains technical information about installation, operation and maintenance of the unit.

2.2 Fields of application

TX Comfort is designed for comfort ventilation in institutions, offices, dining spaces, conference rooms and indoor spaces occupied by people.

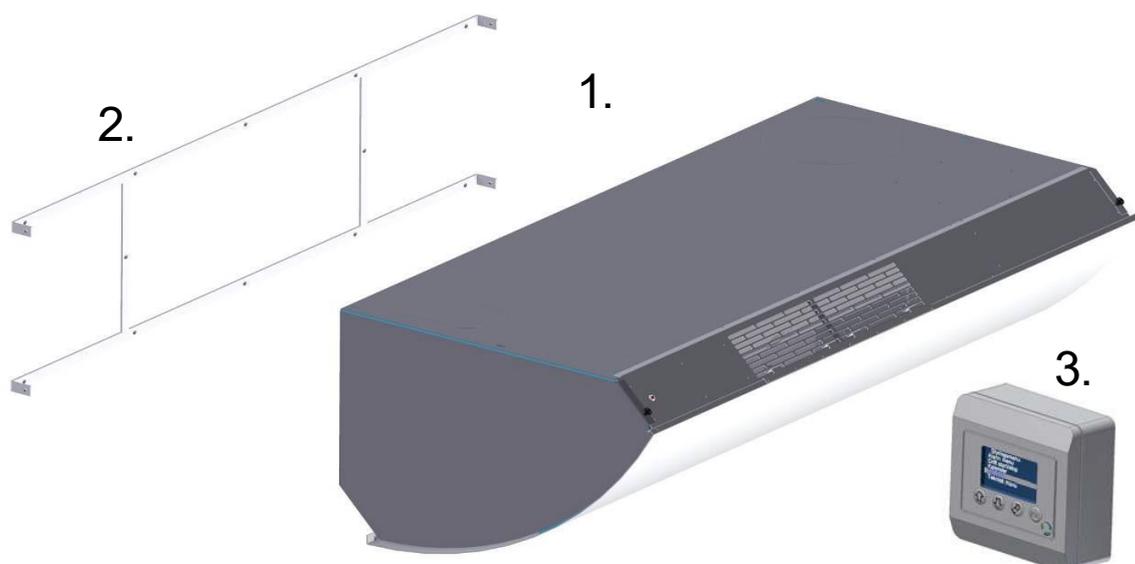
2.3 Misuse

TX Comfort is designed for the living spaces described above in section 3.2.0. The system is not designed for the purpose of local exhaust ventilation.

2.4 Contents of delivery

The TX Comfort unit is delivered with the following main components:

1. Turbovex TX Comfort unit
2. Suspension bracket
3. TX electronic controller



2.5 Operating principle

Turbovex TX Comfort is a decentralized ventilation system with built-in heat recovery for ventilation of comfort rooms in particular in indoor living spaces.

TX Comfort operates with an aluminium counter flow heat exchanger (5) to ensure maximum heat recovery. The unit utilizes warm indoor air to heat up inflowing fresh outdoor air. The counter flow heat exchanger's sole function is for heat retention.

Airflow:

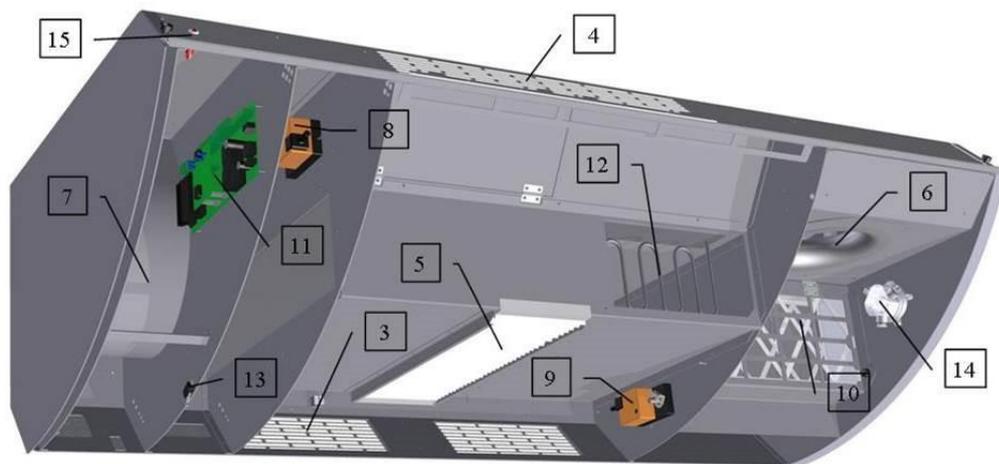
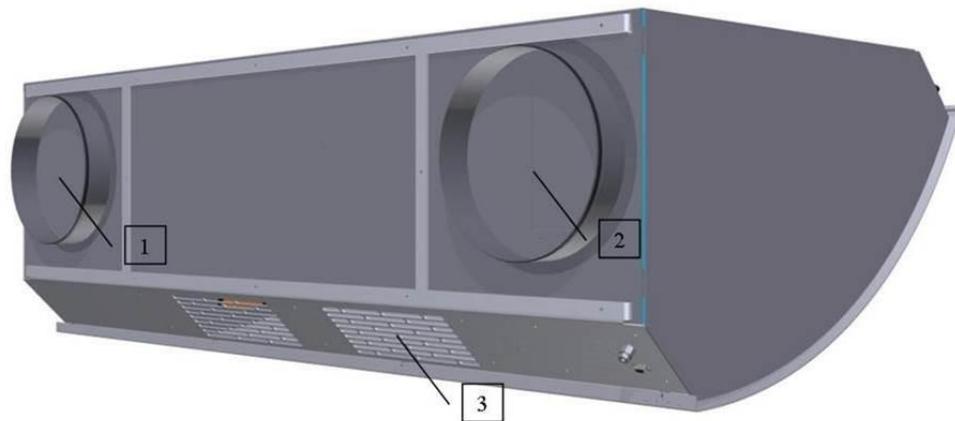
The air supply ventilator (6) (Figure 2) creates inflow of fresh outdoor air through the filter (10), leading the inflow through the heat exchanger (5), and further through the air supply grate (4) and out into the room.

At the same time the air exhaust ventilator (7) creates outflow of indoor air leading it through the exhaust pipe (2) and further out to the open air outside.

The desired temperature of the air supply is regulated on the control panel. A sensor records the actual temperature of the flowing air supply. If the temperature is lower than the setpoint, the control system reduces the flow of the air supply warming it as it flows through the heat exchanger.

2.6 Main components:

- | | |
|--------------------------------|----------------------------|
| 1. Supply air | 8. Bypass motor |
| 2. Exhaust air | 9. Damper motor |
| 3. Exhaust air grate | 10. Supply air filter |
| 4. Supply air grate | 11. Control board |
| 5. Counter flow heat exchanger | 12. Heater (optional) |
| 6. Supply air fan | 13. Circuit Breaker |
| 7. Exhaust air fan | 14. Filter guard |
| | 15. Filter alarm indicator |



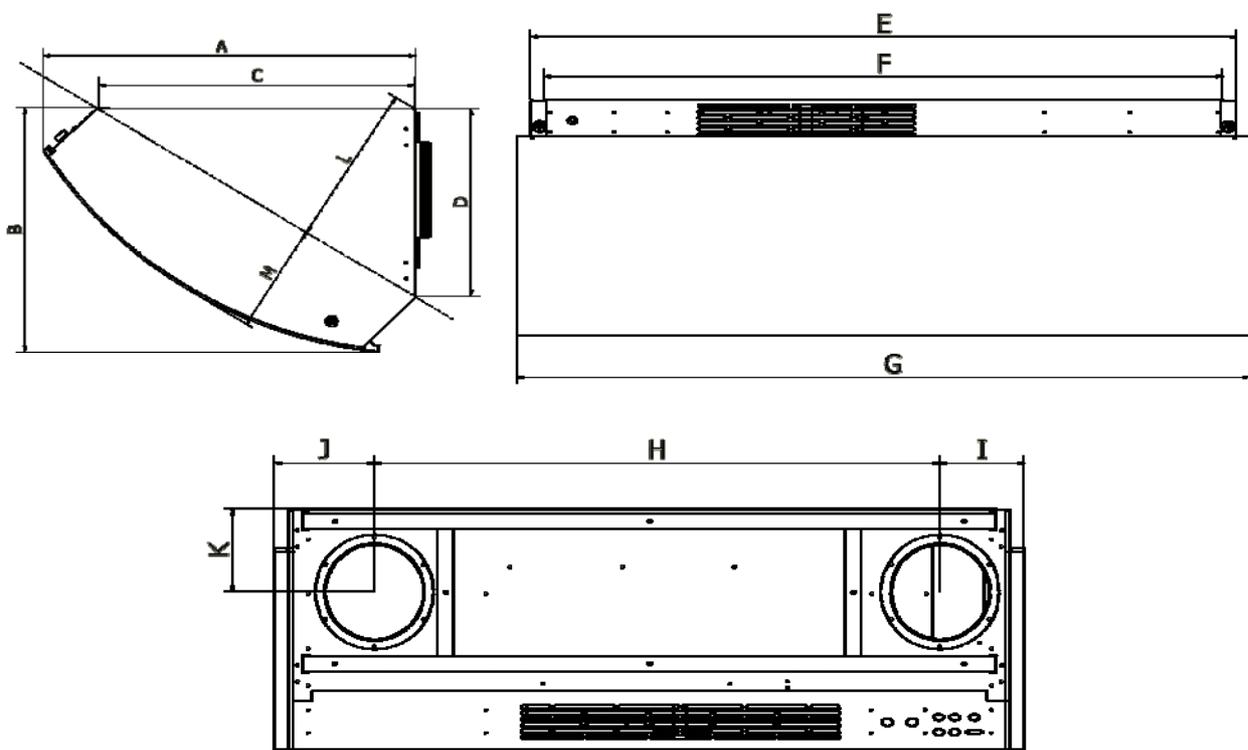
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3.0 Installation

3.1 Dimensions

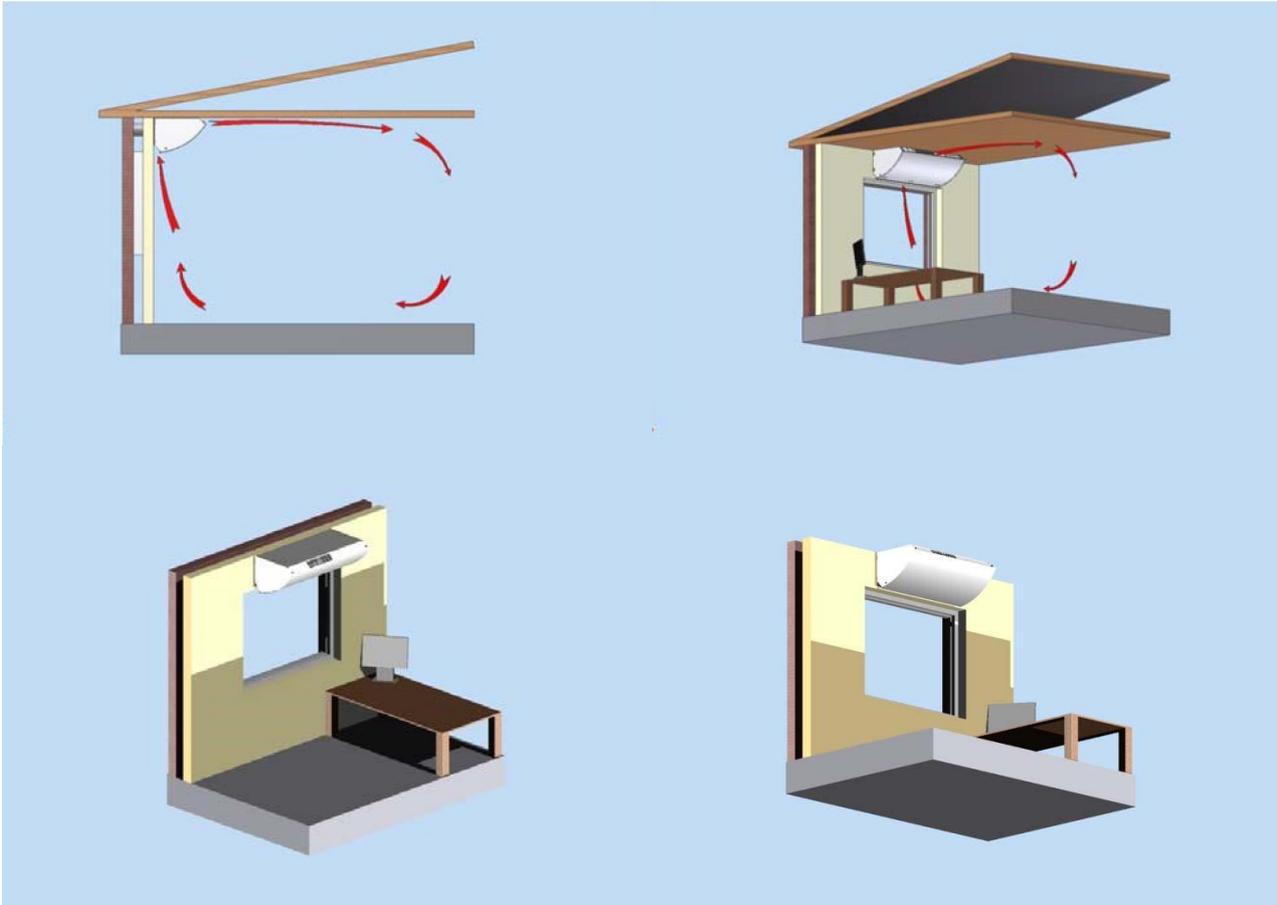
Dimension [mm]	TX 250A	TX 500A	TX 750A	TX 1000
A	595	828	895	1050
B	403	493	565	665
C	500	710	766	917
D	313	382	442	542
E	1156	1506	1767	2067
F	1141	1491	1750	2050
G	1200	1550	1800	2100
H	906	1156	1355	1630
I	135	189	210	235
J	160	205	235	235
K	137	187	203	253
L	280	350	390	465
M	185	245	280	310



3.2 Placement

The unit is generally placed on a wall directly under the ceiling. This location best exploits the coanda effect as it leads the air further into the room along the surface of the ceiling. In this way inflowing air can mix with the room's existing air for a longer period of time and thereby prevent draught. This location, as the point for supply and exhaust airflow, provides optimal circulation within a room.

Standard placement

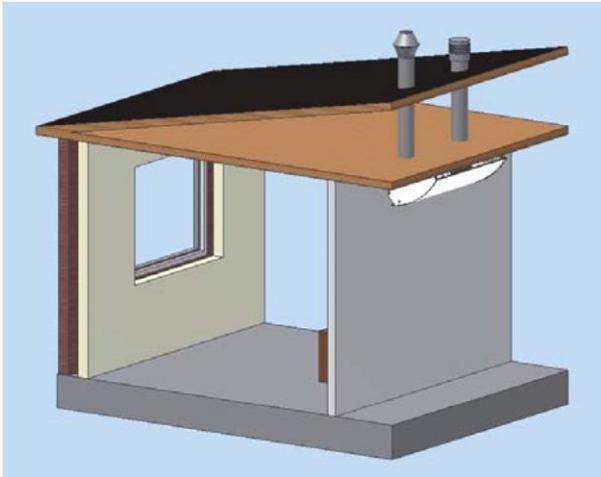


The TX Comfort series also has the possibility of locating the unit in false ceilings. In this way, the unit is less visible.

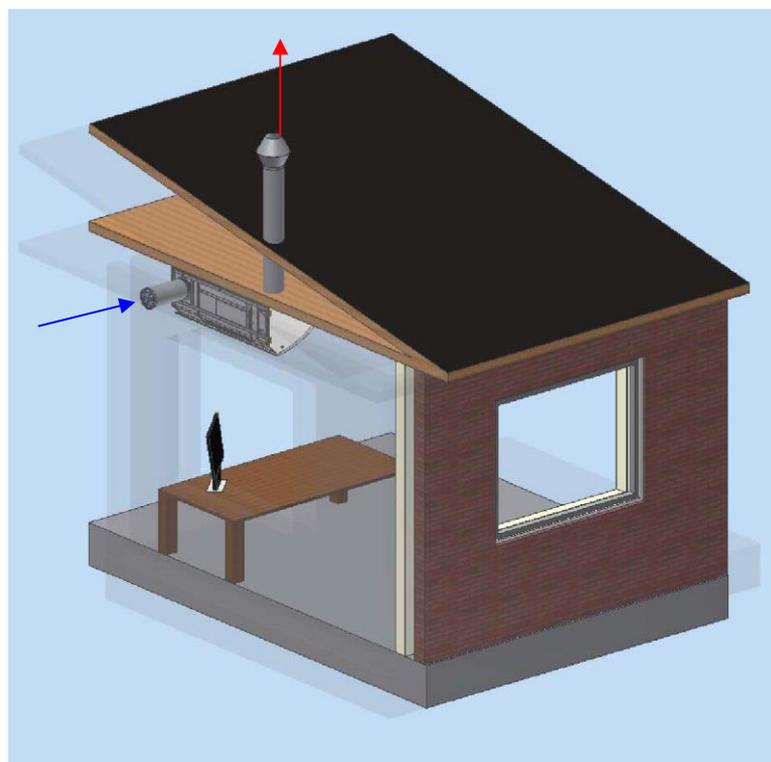
Installation in false ceiling



The TX Comfort series offer the possibility of installing ducts through the wall or the roof.



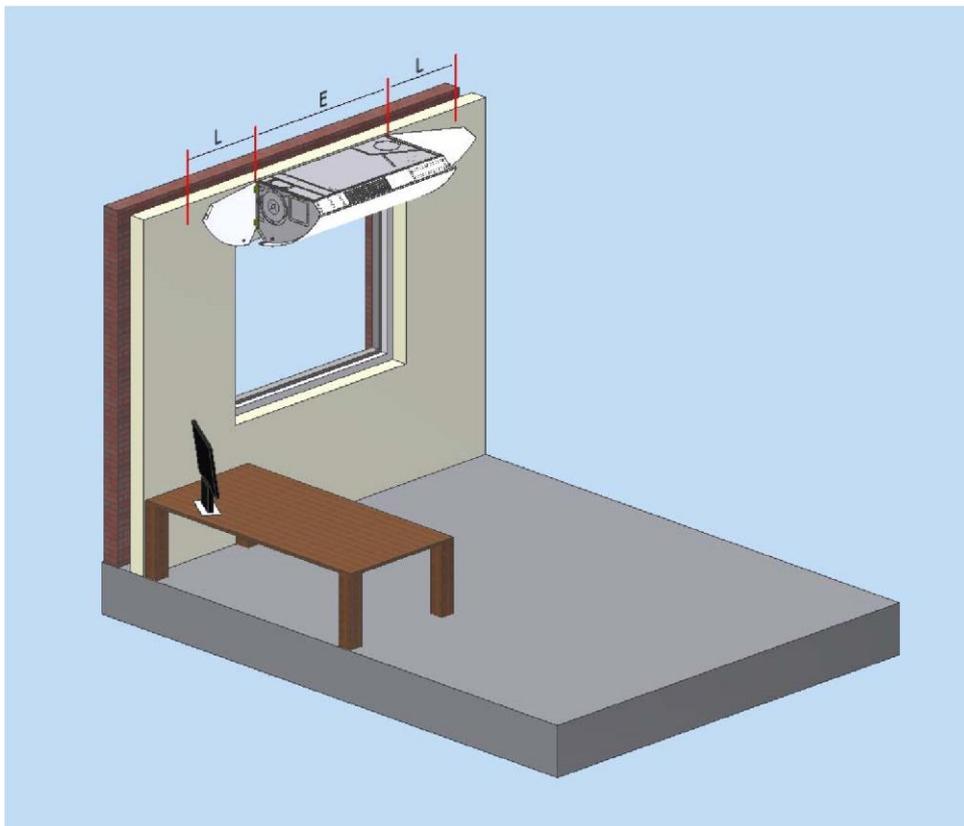
Fresh air can also flow in through a wall duct while exhaust air flows out through the roof. This results in optimal conditions in comparison to a set up with close proximity between the air supply and the air exhaust.



3.3 Minimum distance

Minimum allowed distance between the unit and walls, cupboards or other surfaces.

Dimension(mm)	TX 250A	TX 500A	TX 750A	TX 1000A
E	1156	1506	1767	2067
L	600	850	950	1100



It is important to check that there is sufficient space for the sides of the unit to be fully opened during installation. The minimum distance must be the length L as indicated in the illustration above.

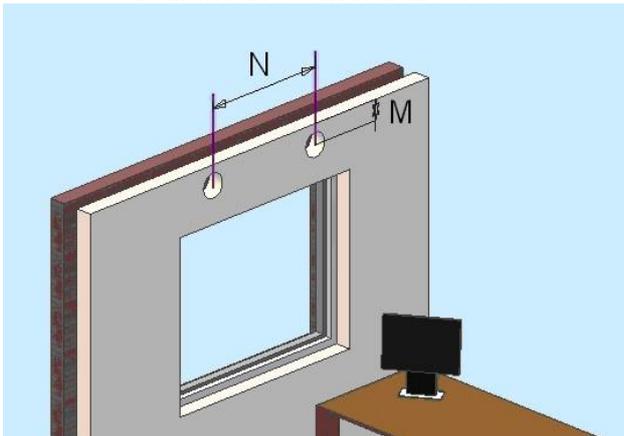
3.4 Wall- or ceiling mounted unit

When the unit is wall- or ceiling mounted, the required outward free space from the centre of each of the two ducts must be the distance M

The location of the suspension bracket and the measurements for mounting the bracket are indicated in the illustrations below.

Dimension[mm]	TX 250A	TX 500A	TX 750A	TX 1000A
M	142	192	209	259
N	906	1156	1355	1630
O	137	187	218	218
P	112	162	193	218
Q	137	187	203	253

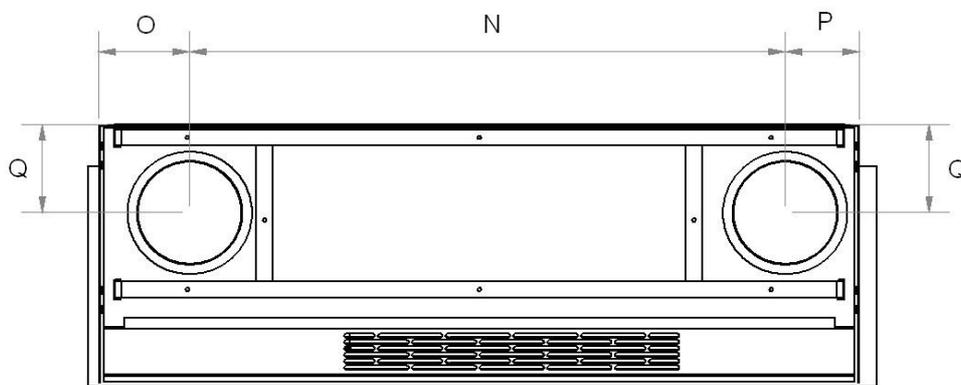
Wall-mounted with wall ducts



Ceiling-mounted with ceiling ducts

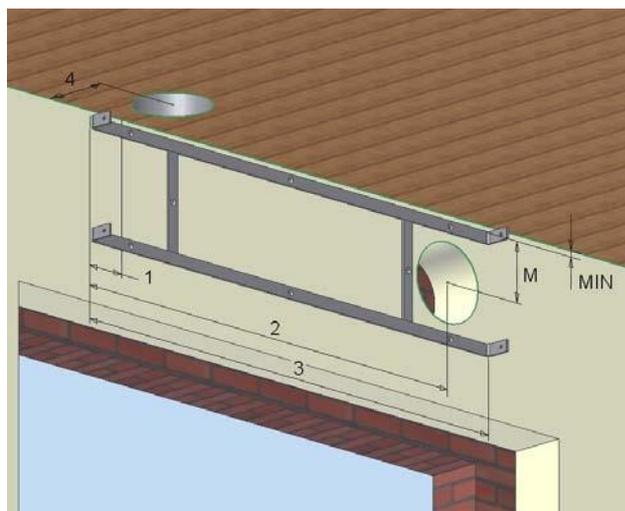
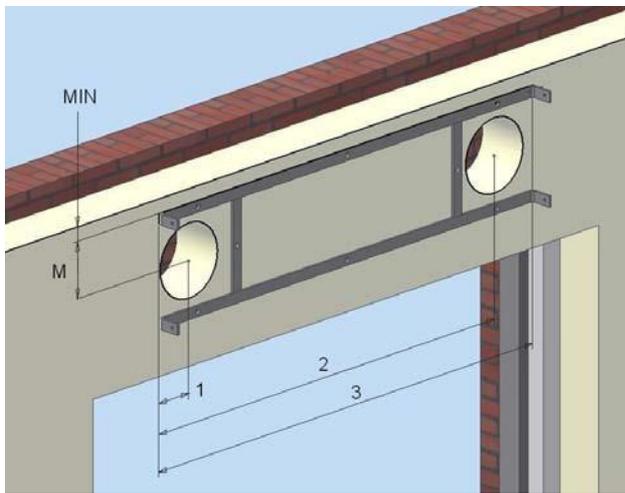


The location of the unit in relation to the ducts (Please note that the unit is viewed from the rear in the figure below).



Install the suspension bracket on either the wall or the ceiling. Use the measurements to pinpoint where to create the ducts and where to mount the bracket.

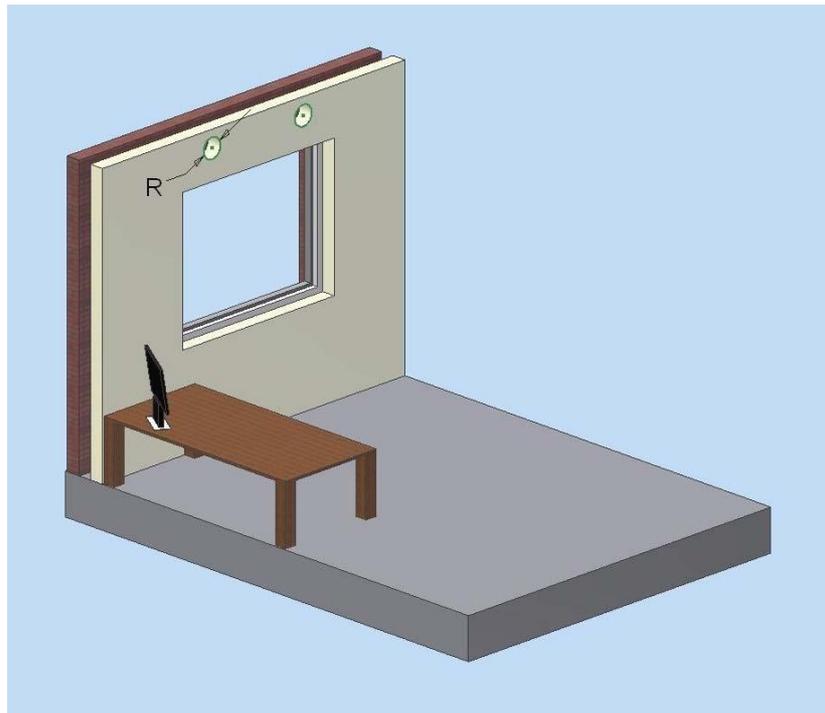
Dimension(mm)	TX 250A	TX 500A	TX 750A	TX 1000A
MIN	13	13	15	15
M	129	179	194	243
1	89	139	168	193
2	995	1295	1523	1823
3	1108	1458	1716	2016
4	142	192	209	258



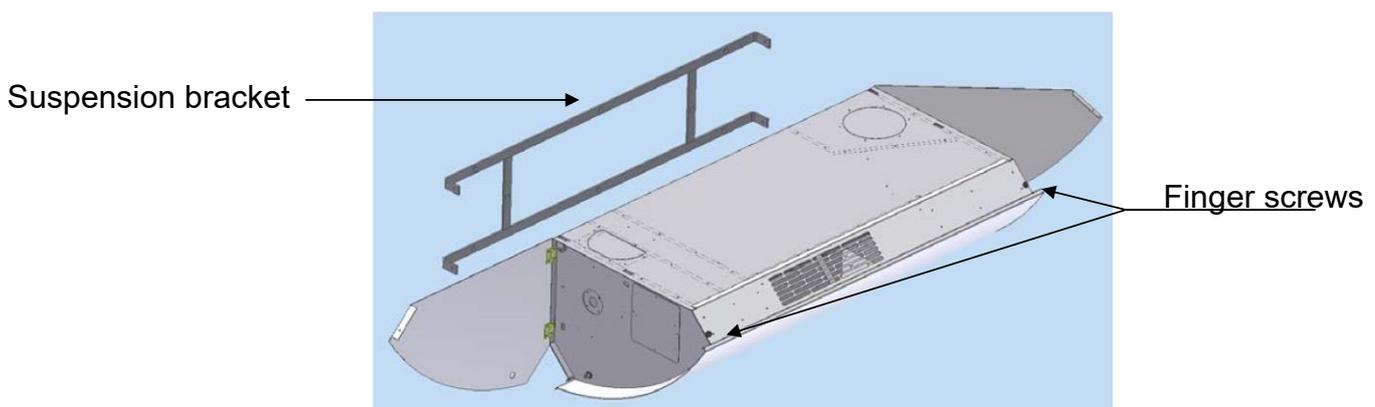
It is important that the "MIN" measurement is followed carefully so that the unit has enough space to be mounted on the bracket.

Drill two holes, 5 to 10 mm bigger than the ducts (R) through the wall or the ceiling. It is **important** to observe all the minimum measurements described in section 3.3 *Minimum distance*.

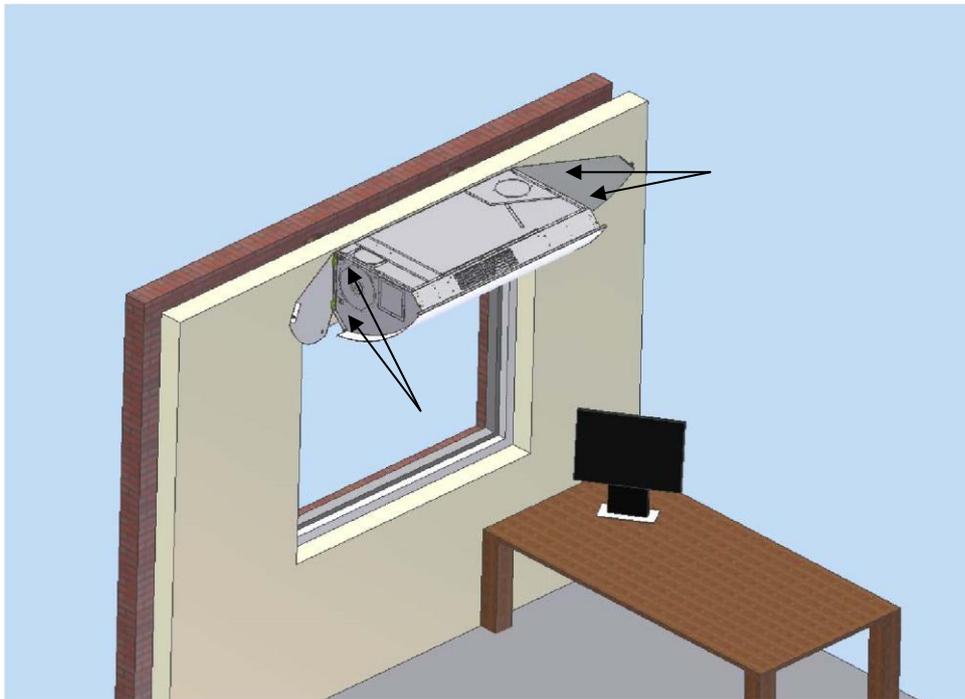
Dimension(mm)	TX 250A	TX 500A	TX 750A	TX 1000A
R	160	250	315	315



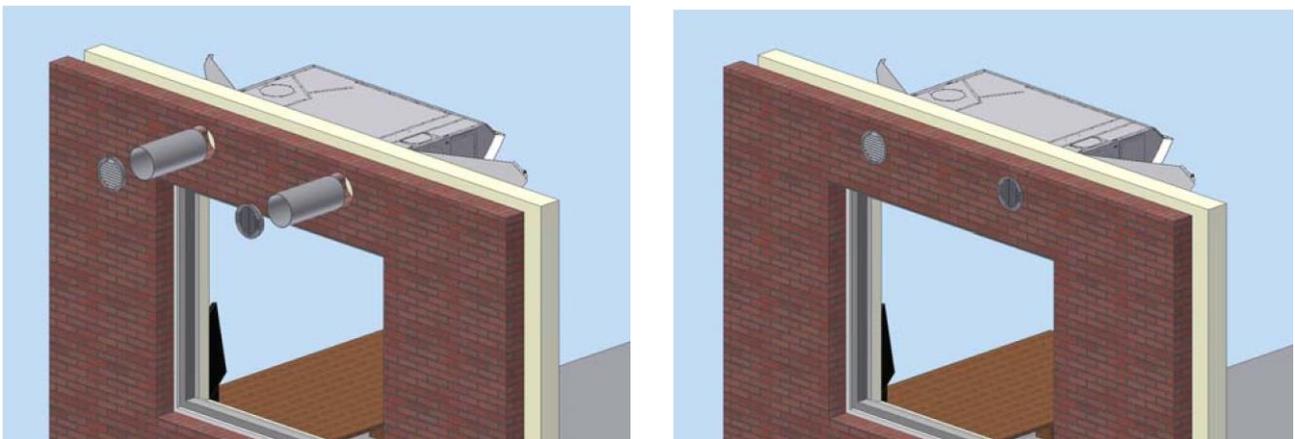
Loosen the two finger screws to open the doors on each side. Remove the suspension bracket and mount it on the wall or the ceiling.



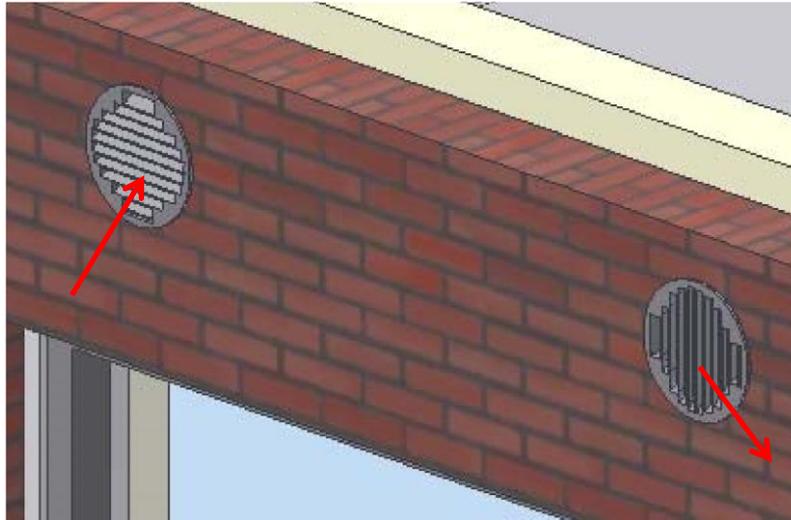
Place the unit on the bracket and mount it with the included 4 bolts.



Mount the ducts. If mounted on the facade, there must be a descending gradient of 1-2% toward the outside to avoid penetration of heavy rainwater into the unit.



Mount the outside facade grates. Mount the grate of the air exhaust with the lamellas facing sideways. The sideways direction should be oriented in the direction away from the air supply. Mount the grate of the air supply with the lamellas facing downwards.



It is important to seal the ducts at the spigot of the unit; otherwise, false air will penetrate the unit.

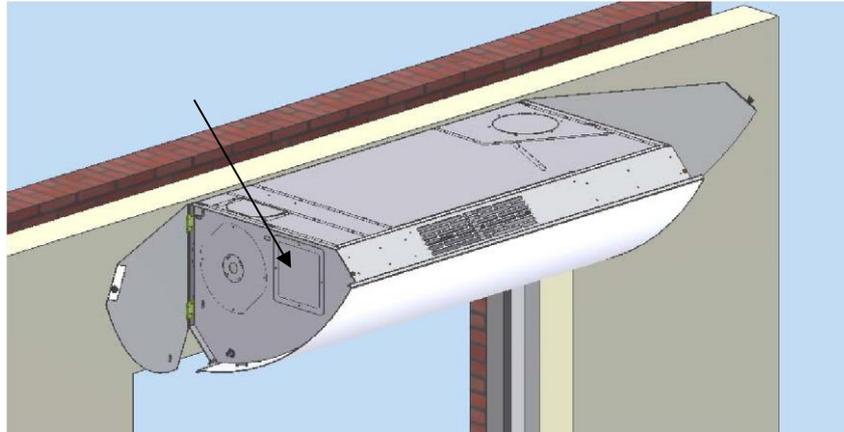
The ducts must under no circumstances be twisted or pressed against the installation collars of the unit, as it will cause an increased noise level of up to +6dB. Make sure that the duct holes leave enough room for insulation with Rockwool or insulation foam.

Connect the power supply according to the included electrical diagram.

The power connection must be performed by a professional electrician

There are two different approaches of locating the main circuit board.

1. Open the left-hand side of the unit and remove the service hatch.



2. Remove the front panel.
The front panel can be removed by loosening the set screws with an Allen key.
The main circuit board will be found in the left side of the unit.
See 2.6 Main components



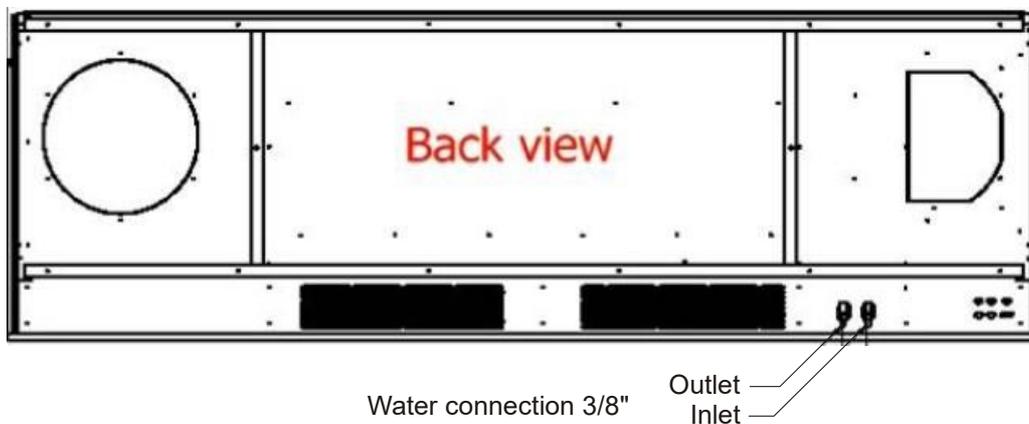
Mount the front panel and/or sides and the unit is ready for use. Make sure to tighten the set screws, otherwise leakage may occur in the unit.

4.0 Connection

4.1 Water connection

Refer to 4.2 *Frost protection of water heating coil* before connecting the water. It is recommended to use a Danfoss FV filter on the inlet to the unit to prevent blockage of the water heater.

NB! The connections are made to the units fixed connections.



4.2 Frost protection of water heating coil

To ensure safe frost protection of water heating coil with the built and factory-tested automatic, the heating coil must always be connected to central heating systems with:

- Flow temperature which is never below + 40°C when freezing weather.
- Water flow in heating coil which is never less than 20 liters. hour at flow temperature of +40°C when freezing weather.

The radiator thermostat inside the unit is, as antifreeze, locked to an air temperature of approx. 14°C. This causes the radiator thermostat opens if the air temperature drops below 14°C, ensuring water flow through the heating coil, when the system is in standby. If you change this setting, there is a risk that the heating coil can cause frost damage.

Warning for frost protection of water heaters

The hot water floor heating system must never be connected to central heating systems where the heat supply is shut off, for instance during weekends and holiday periods, causing the supply temperature to drop below +40°C in freezing weather.

If the flow temperature is below +40°C there is a risk of frost damage on the heating coil, because the heating coil is placed in the inlet from the outdoor air, where the heating coil (along with air-to-air heat exchanger) during normal operation, heat the clean outdoor air for comfort temperature.

Water heating coil should never be connected to central heating systems where the water flow through the heating coil is interrupted – i.e. central heating systems with circulation pump is stopped or switched on for low pump pressure at night setting.

Please also refer to the label that is affixed to the unit:

Important!

Connection to units with water heating.

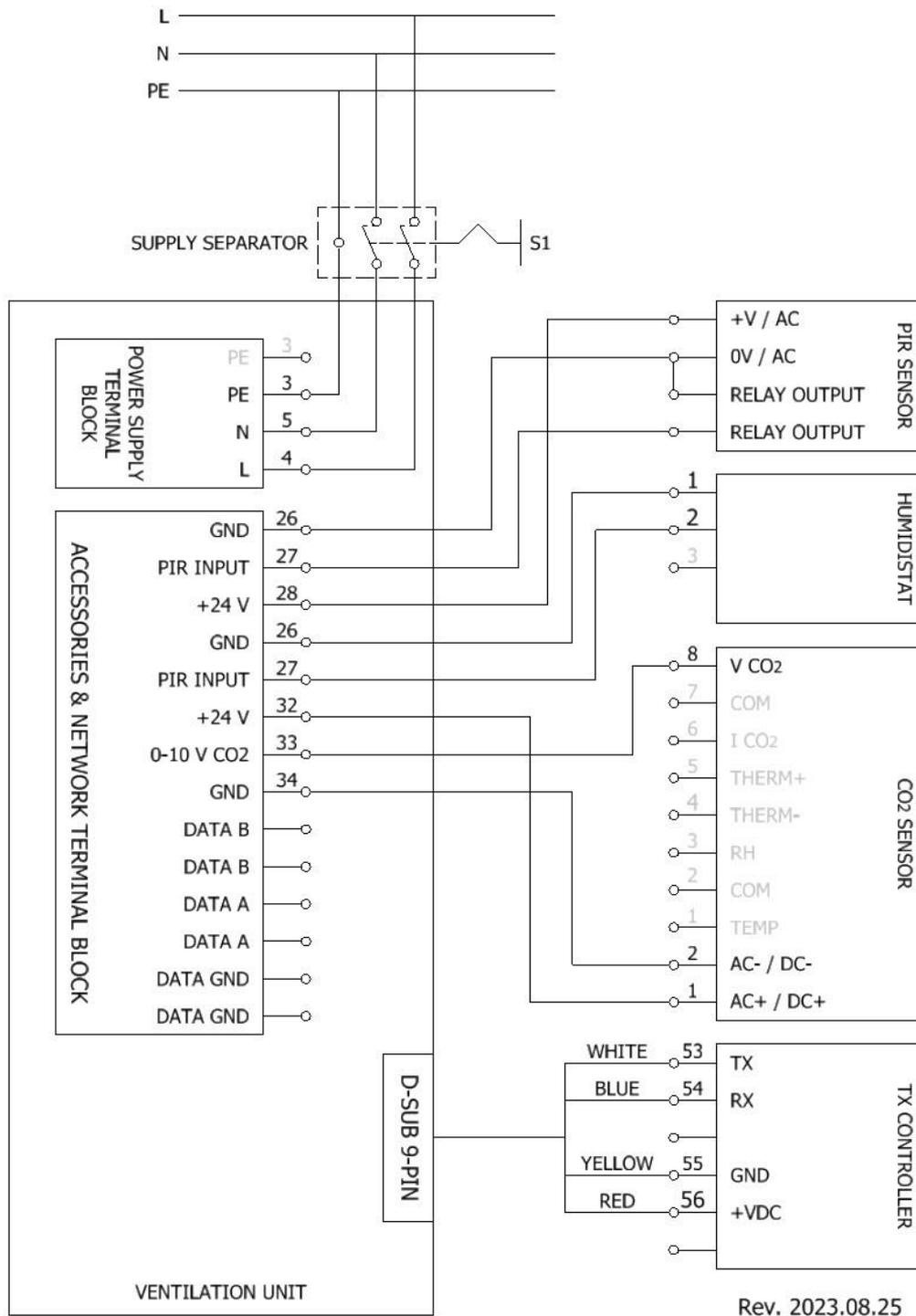
The heating element is secured against bursting from frost down to -12°C, when the value at the scale of the thermostat is set to min. "1,5"

The difference pressure must be at least 0,3 bar and max 0,9 bar, which can be secured by adding a regulator in the main circuit of the system. If the difference pressure is less than 0,3 bar it will infer on the closing speed of the servo valve.

4.4 Power connection for accessories

Connection of Turbovex TX Comfort according to the circuit diagram

The power connection must be performed by a professional electrician



5.0 Technical specifications

	TX 250A	TX 500A	TX 750A	TX 1000A	Unit
Dimension:					
Lenght	1200	1550	1800	2100	mm
Width	595	828	895	1050	
Height	403	493	565	665	
Duct:	2x Ø160	2x Ø250	2x Ø315	2x Ø315	mm
Weight:	35	57	99	122	kg
Capacity:					m ³ /h
Min	100	300	350	500	
Max	250	500	750	1000	
Forced	480	800	1100	1600	
Sound:					dB(A)
Min	26	25	25	27	
Max	35	35	35	35	
Forced	50	53	50	48	
Filter:	F5	F5	F5	F5	Filter class
Energy consumption (motor)					Watts J/m ³
Min	12,6 454	9,8 118	28,5 293	14 101	
Max	28 403	65 468	78 374	150 540	
Forced	110 825	113,6 511	185 605	199 448	Watts J/m ³
Output(motor):	2 x 71	2 x 90	2 x 170	2 x 175	Watts
Power supply:	1 x 230/50	1 x 230/50	1 x 230/50	1 x 230/50	Volt/Hz
Temperature efficiency:	80,6	84,5	78	80,6	%
Electric heating surface: (option):	400	650	1000	1250	Watts
Water heating surface: (option):	340	670	1260	1340	

Air flow indicates the balanced air renewal in relation to the motor voltage and is stated as m³/h. Contact the distributor if the unit is to be used with forced operation.

The sound level is indicated in decibels (dB) in relation to the air renewal, measured at 1 meter in front of and 1 meter directly below the air supply grate. By way of comparison, whispering corresponds to 30 dBA, ordinary spoken conversation corresponds to 60 dB and street traffic to about 90 dBA.

The temperature efficiency on the exchanger is indicated as a percentage (%) and is expressed as the ratio between the obtained temperature difference and the maximum achievable temperature difference.

6.0 Operation

6.1 Regulation of airflow

See also the included manual for the TX electronic controller.

The unit has 2 operational settings. Operation by day provides the dimensioned volume of air the unit was installed for. Operation by night runs slower to save energy during nighttime.

Note! By regulating the volume of air with a CO2 sensor, the unit controls the velocity required for the room.

The after-run period of ventilation systems with an electric postheating surface is approximately 80 seconds.

6.2 Heat regulation

See also the included manual for the TX electronic controller.

The desired temperature is regulated using the control panel. The temperature should not be set higher than the room temperature. The temperature of the fresh air should be 2-3 degrees below the room temperature to provide optimal circulation within the room. When the unit shuts down, it automatically saves the latest temperature setting and will use this setting when it starts up again.

The unit has a fully automated by-pass system that leads the air around the exchanger when the temperature allows it.

6.3 Master / slave

This function requires a small circuit board that can be acquired at the distributor.

Up to 5 slaves can be connected to a master. One unit can thus control 5 other units, so that all 6 units run with the same parameters.

See the user manual for master/slave options and how to correctly set up the units.

As a standard, the unit is a master.

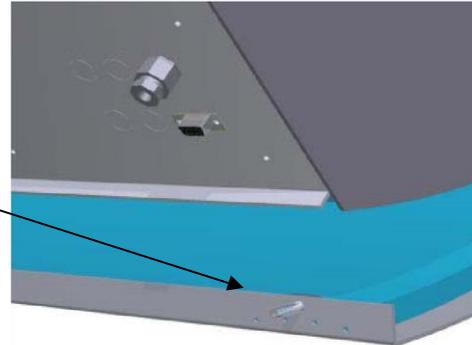
7.0 Service

7.1 Change of filter

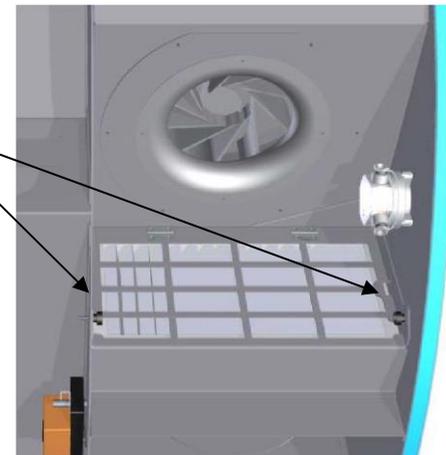
If the filter change indicator lights up, change the filters.

1. Change of supply air filter.

- Loosen the set screws and open the front Cover using an Allen key.
- Open the front Cover

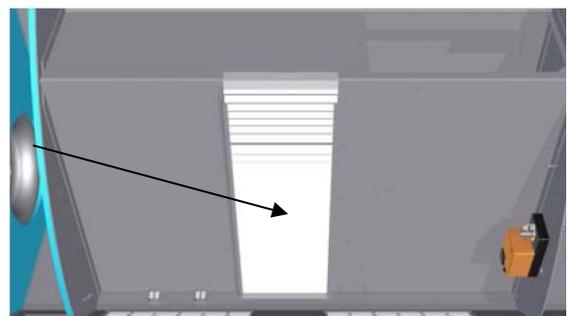


- Loosen the 2 thumbscrews and tilt the filter holder.
- Replace the used filter with a new one. The side marked "Dust Air Side" must be facing your direction.
- Tighten the thumb screws, securing the filter holder.



2. Change the exhaust filter

- Remove the exhaust air filter out and replace it with a new one.
- Close the front Cover.
- Make sure to tighten the set screws in order to avoid any leakage in the unit.

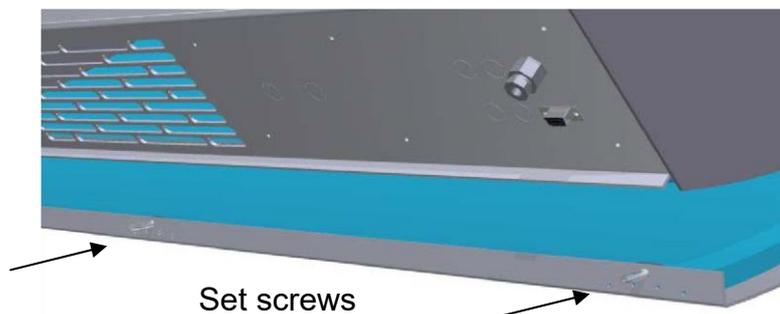


7.2 Cleaning of heat exchanger

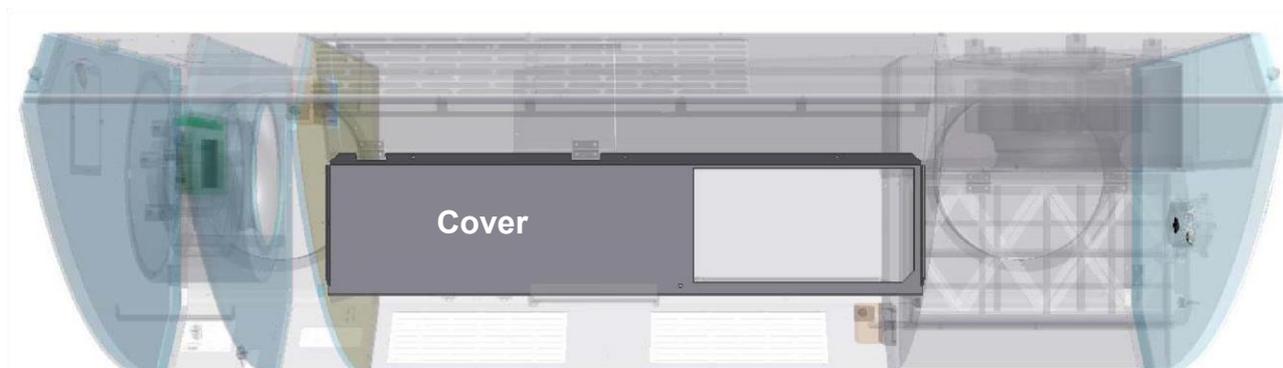
It is recommended to clean the heat exchanger once a year.

Shut off the supply voltage before opening the front Cover.

- Loosen the set screws using an Allen key and open the front Cover.



- Remove the cover and pull out the heat exchanger. Gently clean the heat exchanger using a vacuum cleaner.



- Reinsert the heat exchanger and mount the cover.
- If necessary, replace the exhaust filter.
- Close the front Cover. Make sure to tighten the set screws to avoid any leakage in the unit.



8.0 Declaration of conformity

The Declaration of Conformity can be seen on our website:

https://www.turbovex.dk/fileadmin/Documents/overensstemmelseserklaering_UK.pdf