GB

DEX3000 EXcon

Assembly and installation

Original instructions

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EXHAUSTO

Symbols, terms and warnings

1. Product information

2. Assembly

3. Electrical installation

4. Technical data

5. Maintenance and servicing

Symbols, terms and warnings

Symbols, terms and warnings

Prohibition symbol

Failure to observe instructions marked with a prohibition symbol may result in serious or fatal injury.

Danger symbol

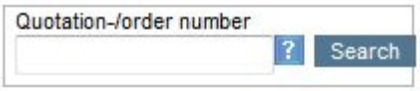
Failure to observe instructions marked with a danger symbol may result in personal injury and/or damage to the unit.

Scope of the instruction manual

These instructions apply to EXHAUSTO DEX series air handling units. For non-factory accessories, refer to the separate instructions for the product.
The instruction manual must be fully observed to ensure personal safety and the safety of others, and to protect equipment and ensure the correct operation of the DEX unit. EXHAUSTO A/S accepts no liability for accidents caused by a failure to use the product in accordance with the manual's instructions and specifications.

Important!

Always check whether the latest version of the publication is available by searching for the order number on the EXHAUSTO website under Downloads



Prohibited uses

The DEX unit is not to be used to transport solid particles or in areas where there is a risk of explosive gases.

Startup

The unit must not be started up until it is fully mounted with door and duct connections.

Opening the air handling unit

Do not open the service door until power has been disconnected and the fans have stopped.

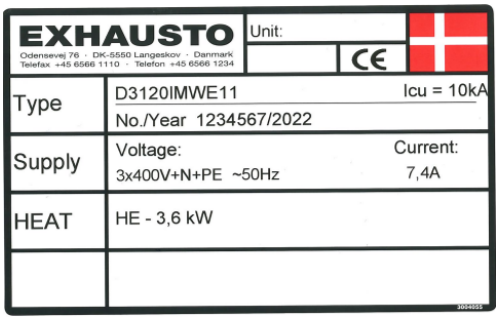
Duct termination in wall

Mount a permanent protective mesh to the exhaust and outdoor air connection, using a mesh size of max. 20 mm. For example, use the EXHAUSTO outer wall grilles.

Information plate

The DEX unit information plate shows:

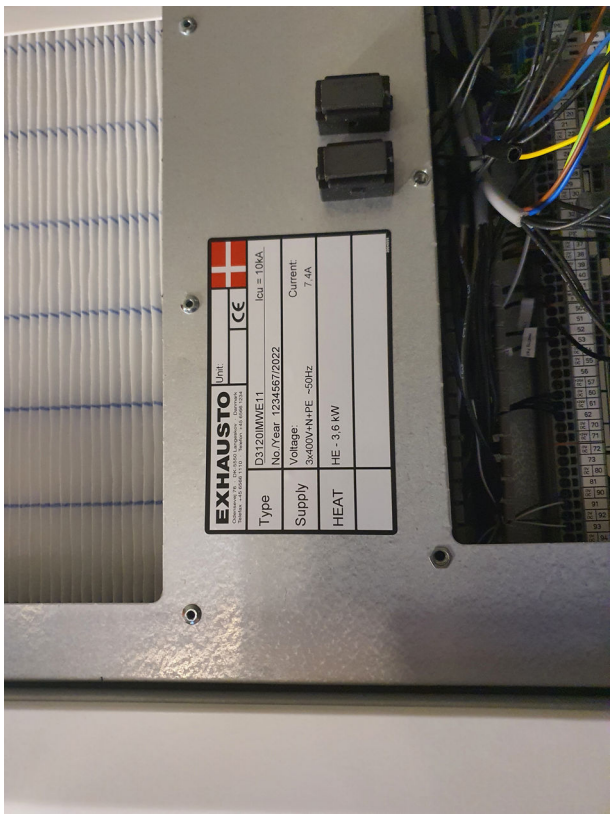
- Which DEX variant the unit is
- Unit production order no.
- Unit supply voltage
- The unit's after-heating/cooling coil



NB: **Always have the production number ready when contacting EXHAUSTO about the product.**

Location of identification plate

The type plate is located between the extract air filter and the control system panel.



1. Product information

1.1 Product use

Comfort ventilation

EXHAUSTO's DEX3000 unit is used for comfort ventilation in frost-free single-room locations.

The DEX unit is designed for ceiling mounting and must be used as such.

Temperature range for use of the unit – see section “Technical data”.

Terms used in the manual

This instruction manual uses the following terminology:

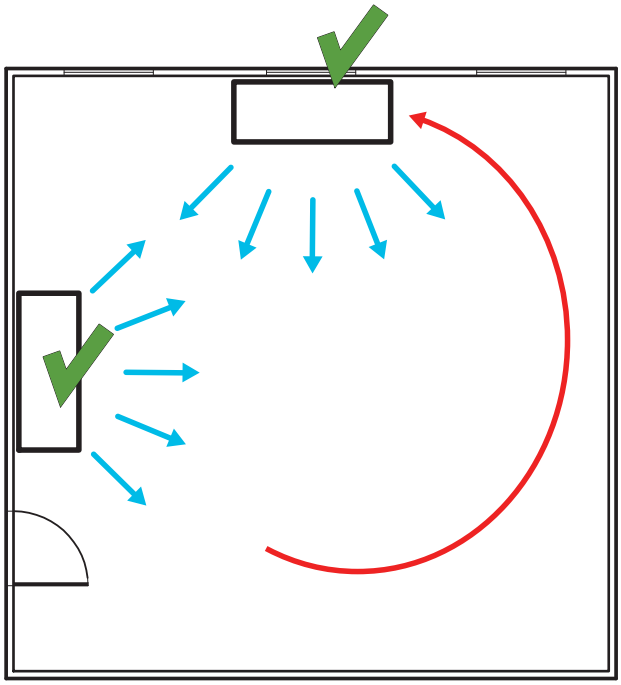
- Supply air (inlet aur)
- Extract air
- Outdoor air
- Exhaust air

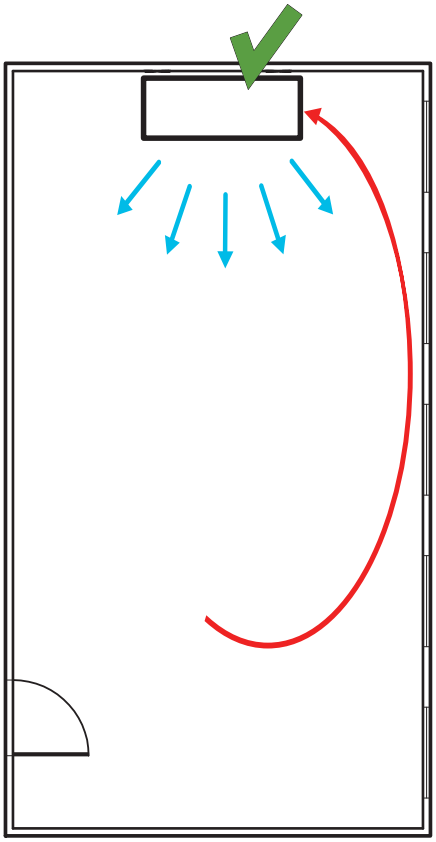
1.2 Location in room

1.2.1 Optimum location

As far as possible the unit should be located in the middle of the wall.

⚠ **Avoid placing the DEX3000 units on the long side of narrow rooms.**





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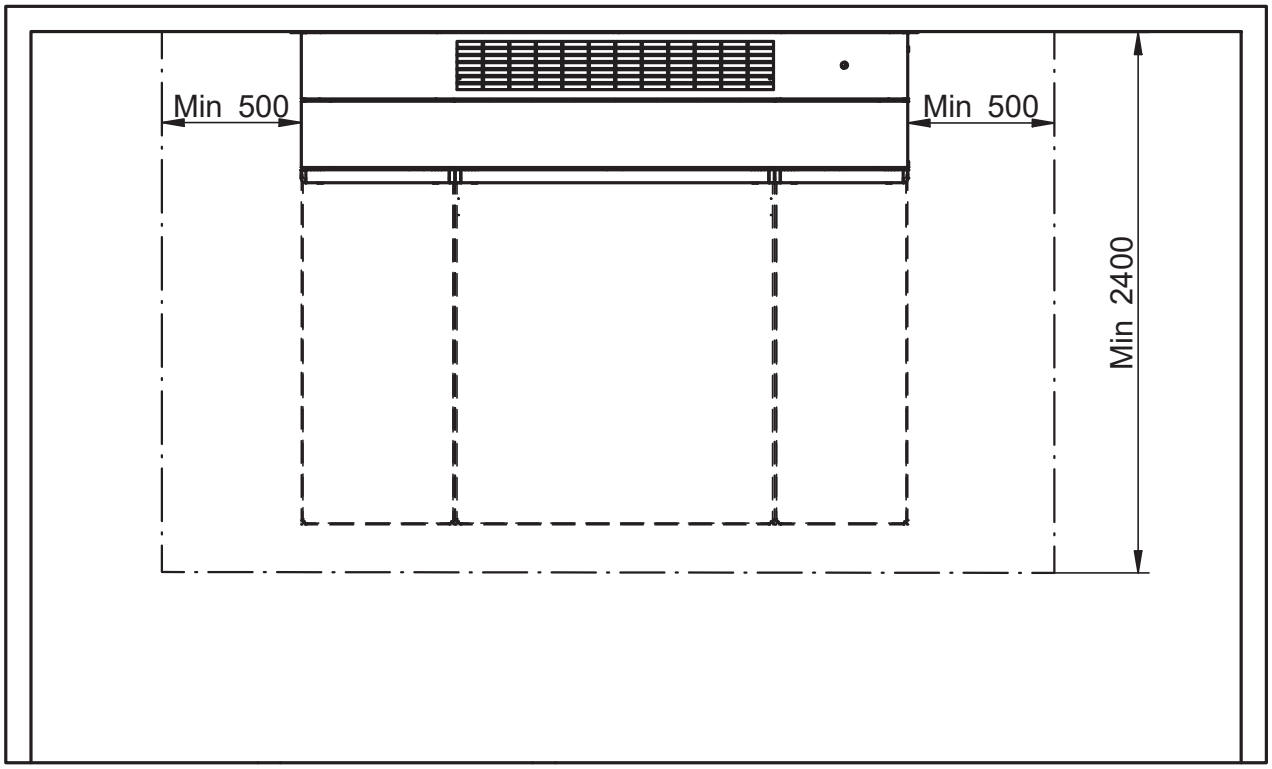
1.2.2 Space requirements

Space requirements and minimum clearance

The sketch shows how much space is required under the unit for opening the door and servicing.

The dimensions at the sides of the unit indicate the minimum clearance for optimum servicing conditions.



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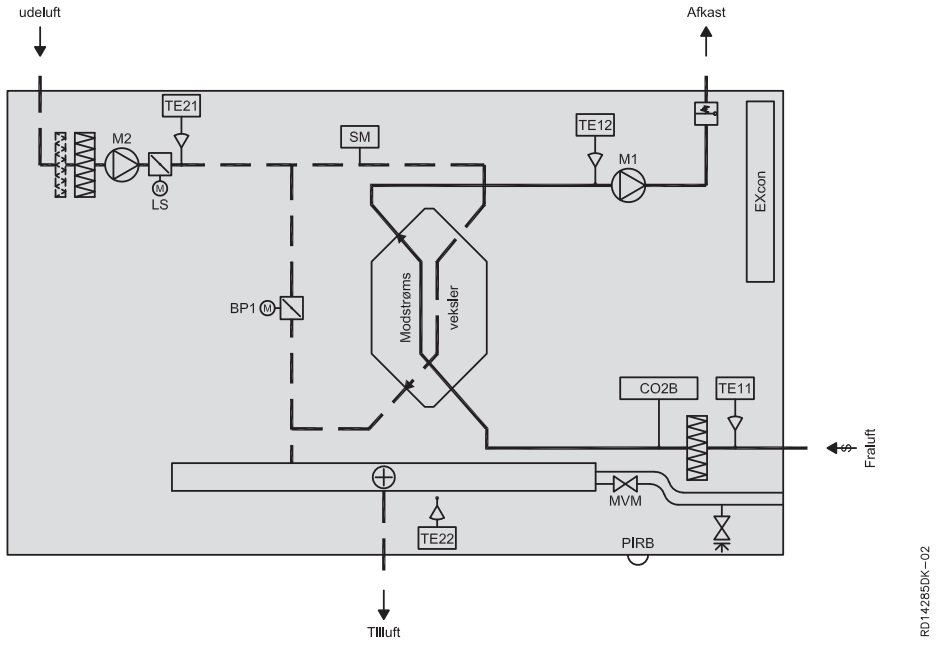
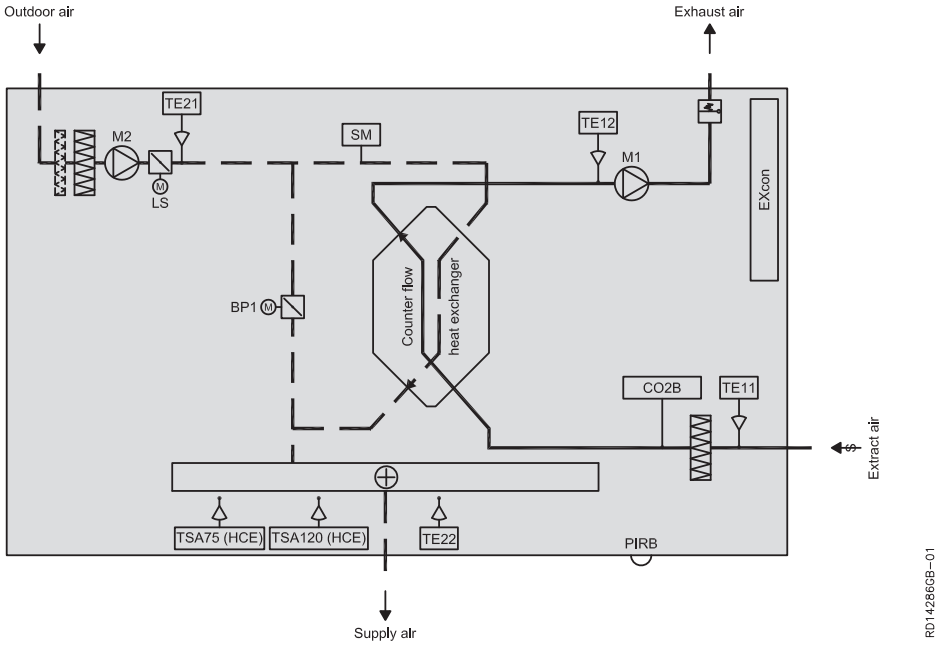
1.3 Designations used in these instructions

1.3.1 Simplified diagram

With integral water heating coil, HW (top view)



With integral electric heating coil, HE (top view)

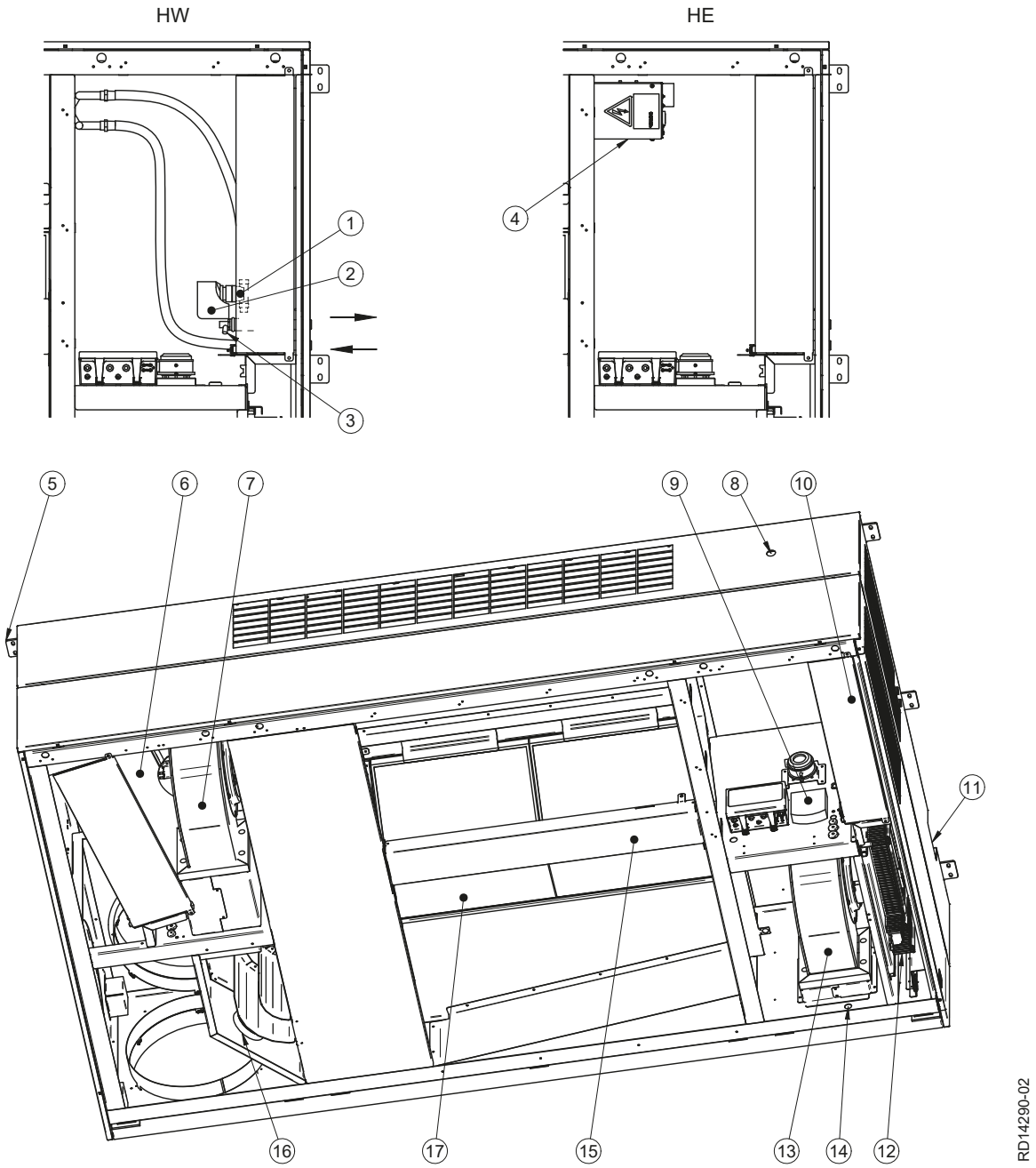


Component	Function	Standard/accessory
HE1/HE2	Electric heating coil	Accessories
HW	Water heating coil	Accessories
M1	Extract/exhaust air motor	Standard
M2	Outdoor/supply air motor	Standard
BP1	Bypass motor	Standard
TE11	Temperature sensor, extract air	Standard
TE12	Temperature sensor, exhaust air	Standard
TE21	Temperature sensor, outdoor air	Standard
TE22	Temperature sensor, supply air	Standard
LSR	Outdoor air closing damper with spring return	Accessories (Standard for HW)
	Automatic overpressure damper for horizontal exhaust	Standard
LS (A)	Closing damper for vertical exhaust	Accessories
TSA75	Overheating protection, electric heating coil (automatic reset)	Accessories
TSA120	Overheating protection, electric heating coil (manual reset on HMI/web server)	Accessories
PIRB	Motion sensor, integral	Accessories
CO_2	CO_2-sensor, built-in	Accessories
SM	Smoke detector	Accessories

1.4 Description

1.4.1 DEX unit construction

The drawing below shows an overview of the DEX unit construction. Details for HW and HE are seen from below:



Pos.	Part	Function
1	Water valve	
2	Motor for water valve	
3	Bleeder valve	Bleeding of water system
4	HE	Control system for electric heating coil
5	Ceiling bracket	Bracket for ceiling mounting
6	Outdoor air filter	Filters outdoor air
7	Fan unit	For outdoor air/supply air
8	Motion sensor, PIRB	Motion sensor
9	CO_2-sensor	Sensors for on-demand control
10	Extract air filter	Filters extract air
11	Connector	Connection for HMI service cable
12	Control system, terminal block	Control system, connection of accessories
13	Fan unit	For extract/exhaust air
14	Guide channel for condensation outlet (wall-mounted unit)	Used when condensation outlet is fitted
15	Condensation tray	Collects condensate from counterflow heat exchangers. Leads any condensate via condensate pump (optional/accessory).
16	Smoke detector	Smoke detector mounted in the outdoor air
17	Counterflow heat exchanger	Two aluminium counterflow heat exchangers

1.4.2 DEX unit, parts and materials

Cabinet

The exterior of the cabinet is made of Aluzinc® The cabinet is insulated with 50 mm sound insulation material.

Fans

The unit contains two centrifugal fans with EC motors for extract air and supply air.

Counterflow heat exchanger

The unit's counterflow heat exchangers are made of aluminium and are highly efficient. The counterflow heat exchangers can be taken out and cleaned.

Filters

The unit includes built-in compact filters for both extract air and supply air, see section 4.3.

Condensation outlet

The condensation tray is located under the counterflow heat exchangers. There will only be a condensation outlet from the condensation tray if a condensation pump has been purchased. See also section on connection of condensation outlet.

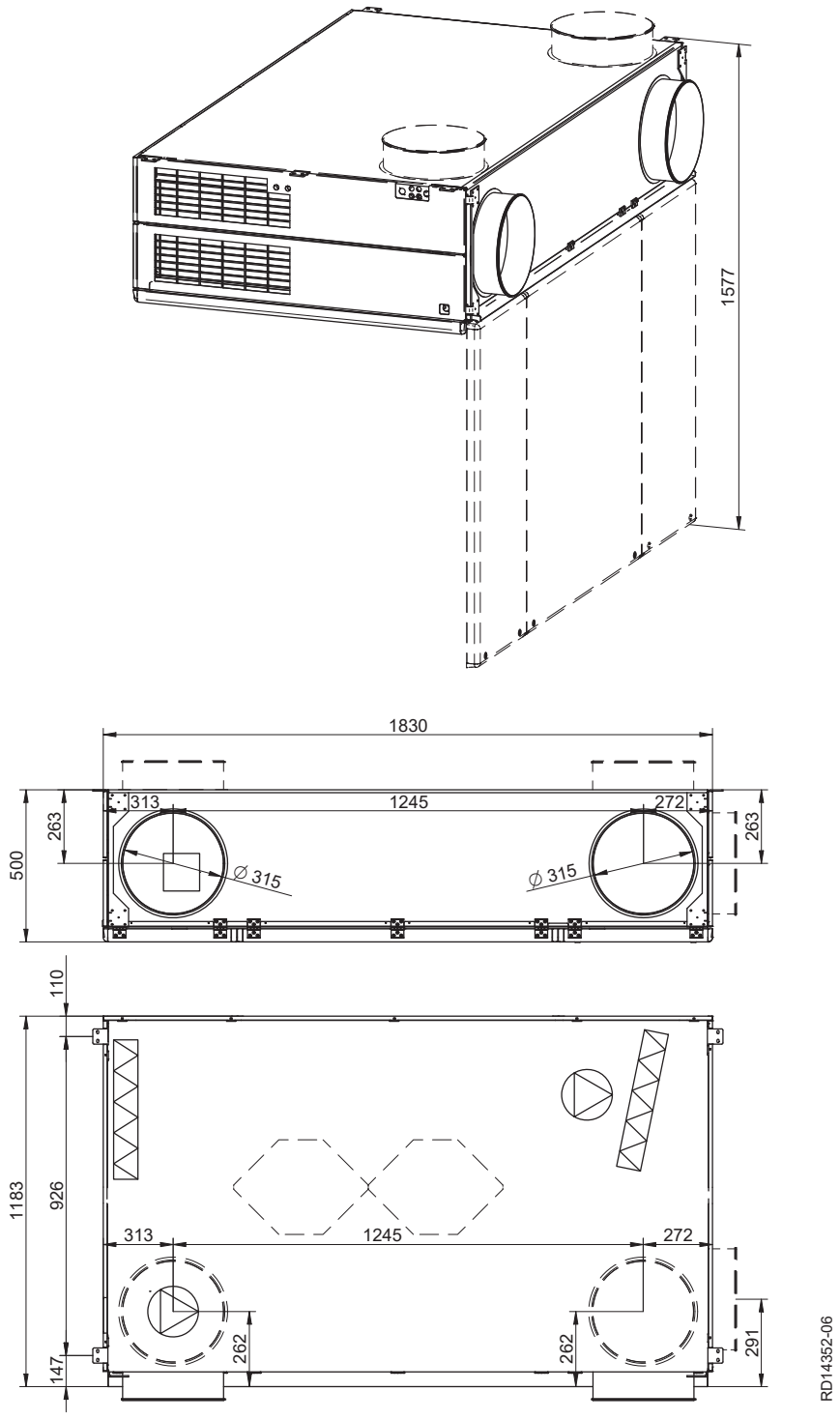
Bypass damper

The unit has a variably adjustable bypass damper for temperature regulation and de-icing of counterflow heat exchangers during operation. See operating and service instructions for further description of de-icing.

1.5 Principal dimensions

1.5.1 Ceiling mounting - visible

DEX3060



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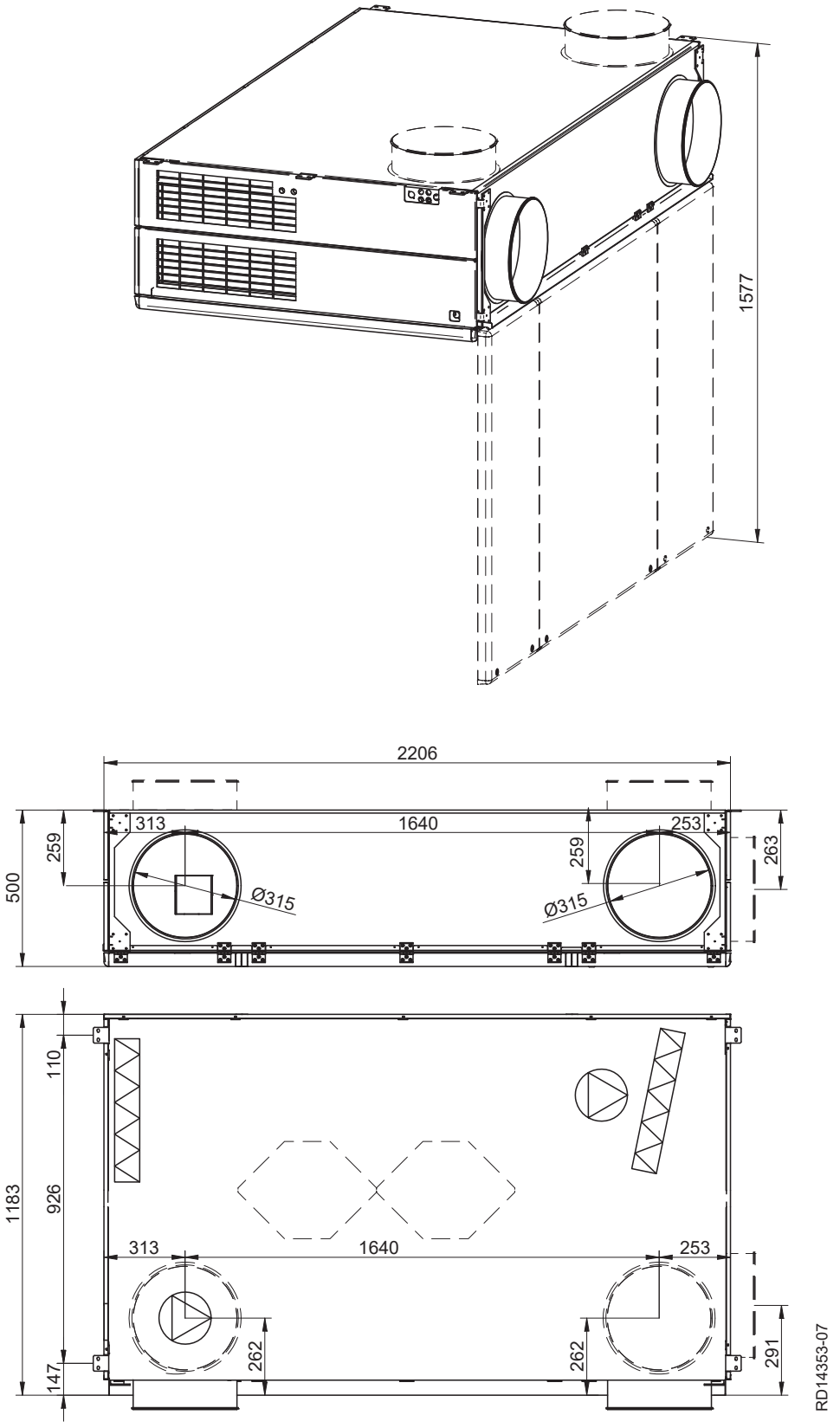
DEX3090



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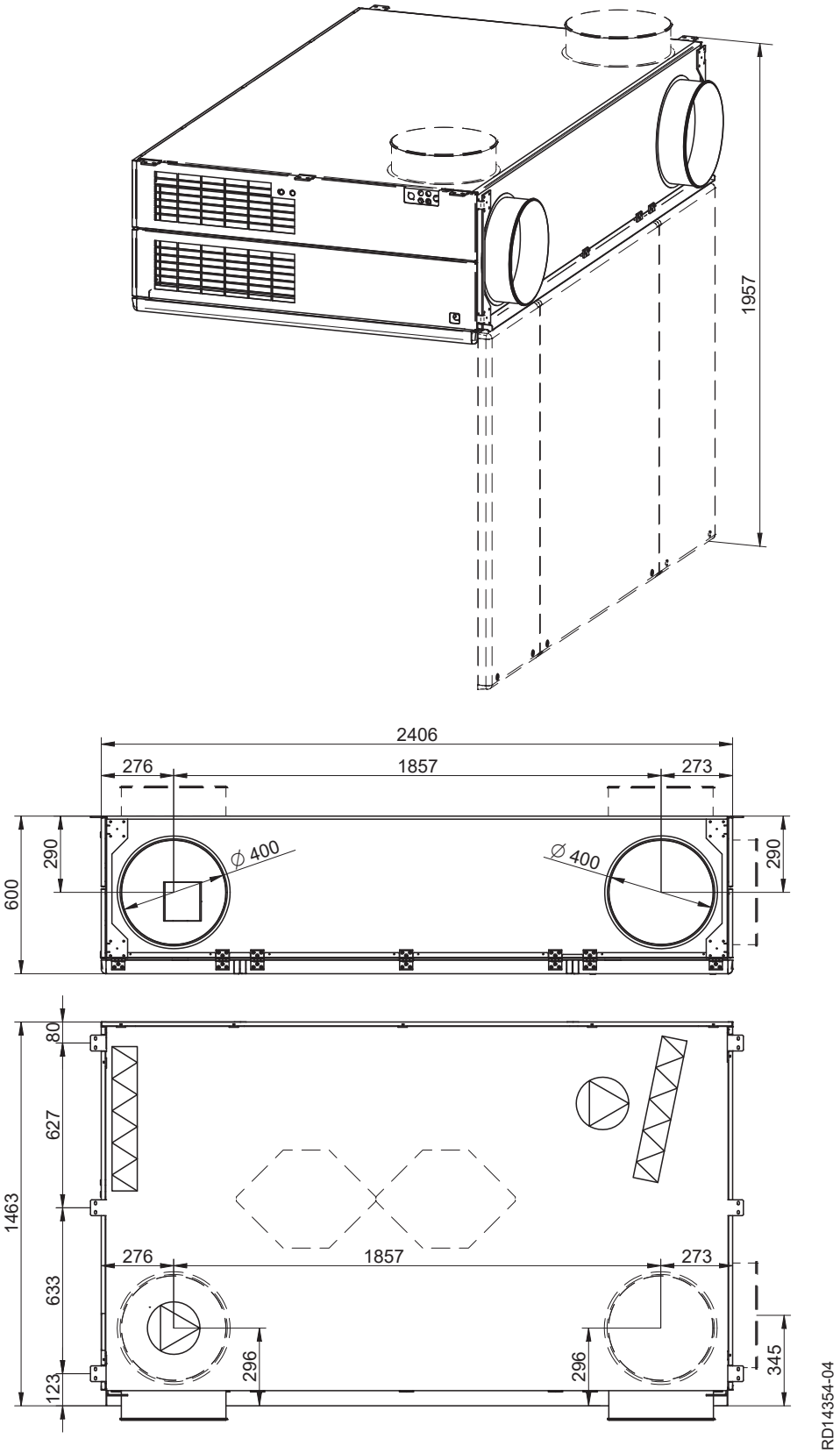
DEX3120



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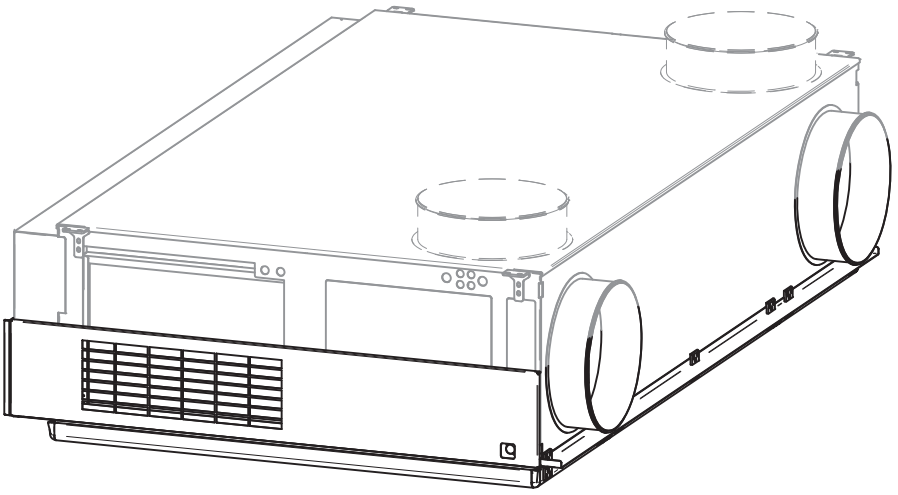
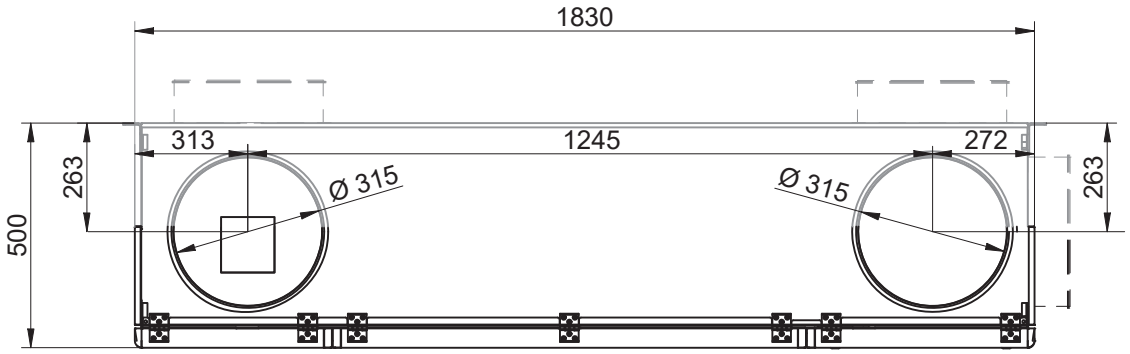
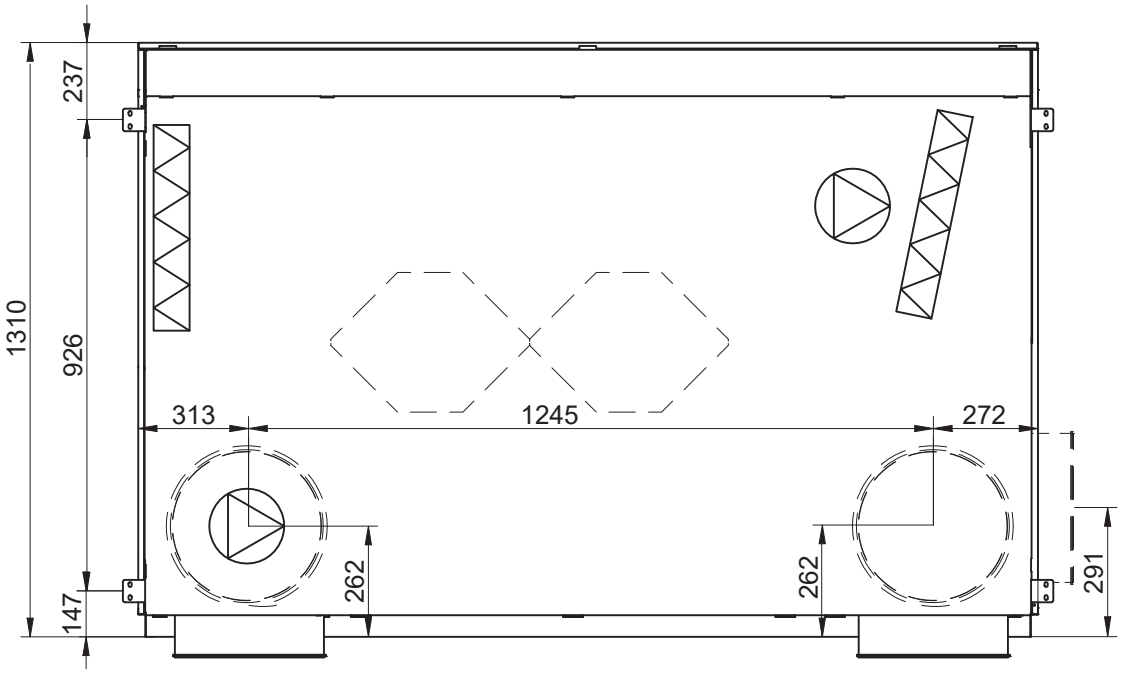
1.5.2 Partly integrated ceiling mounting

DEX3060 integrated







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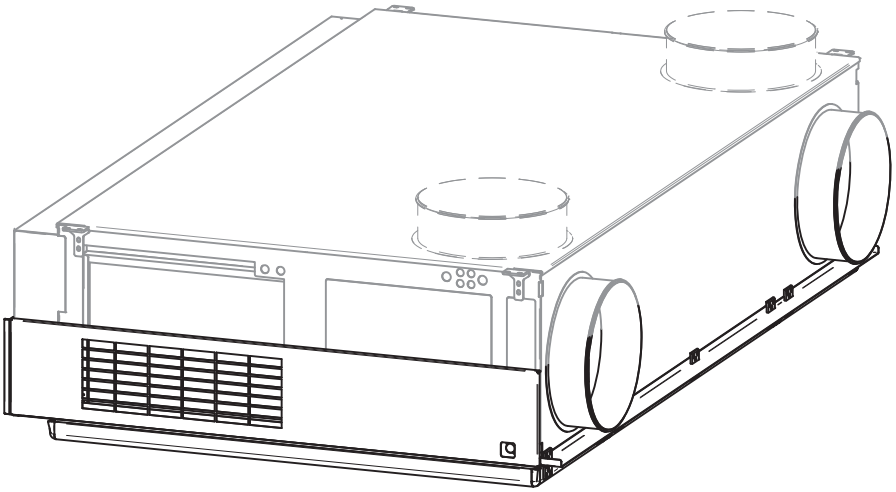
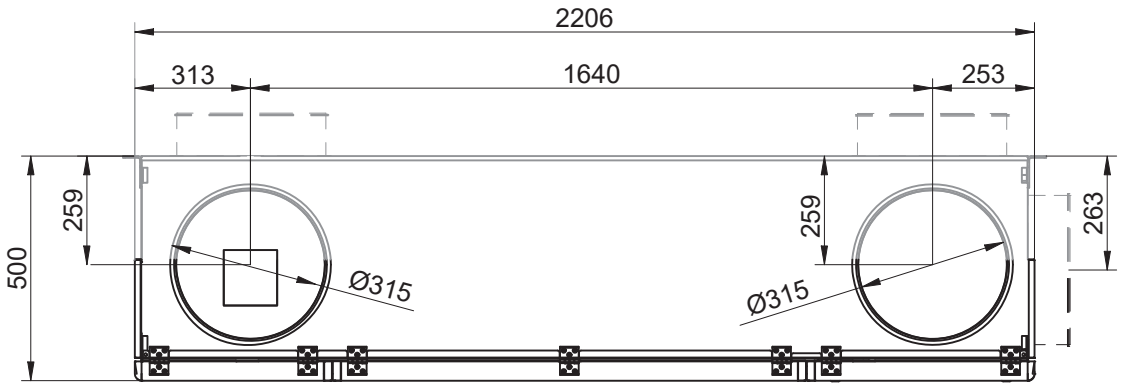
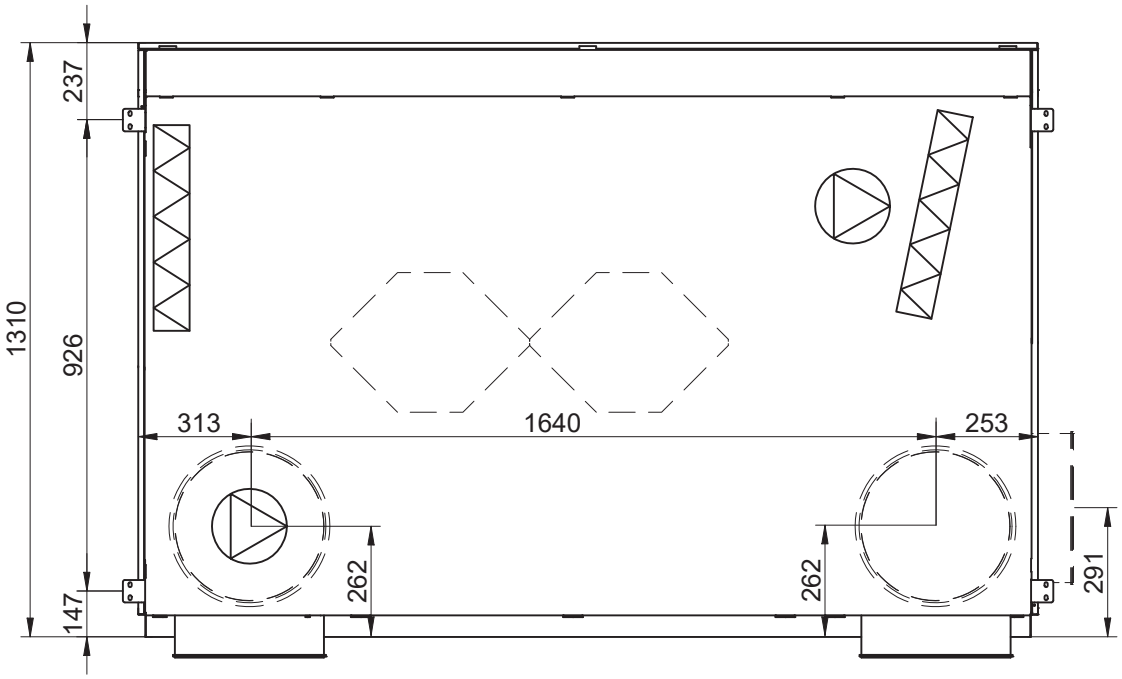
DEX3090 integrated







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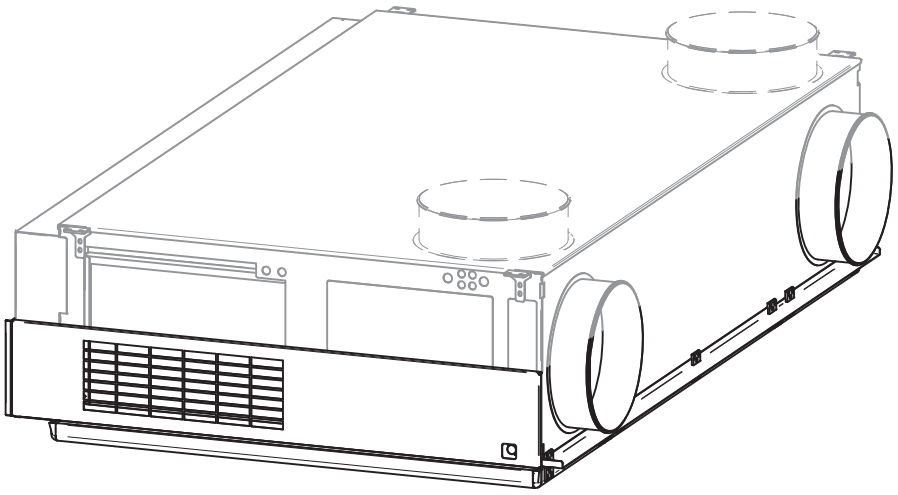
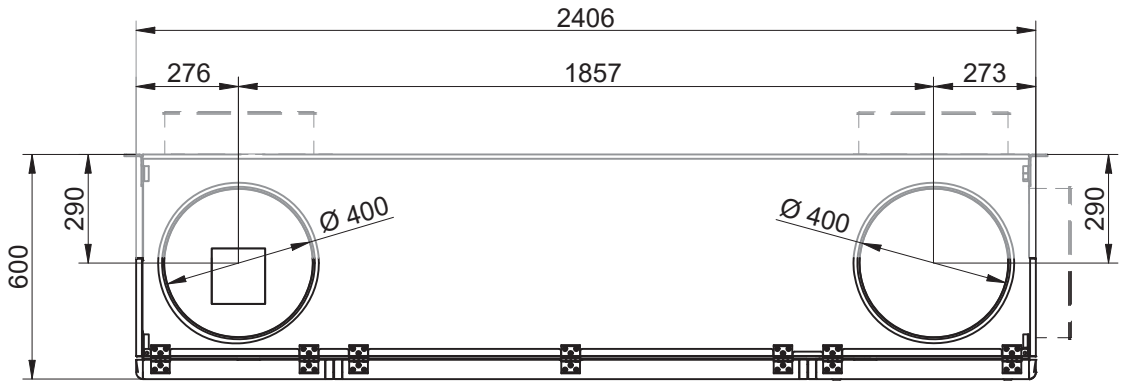
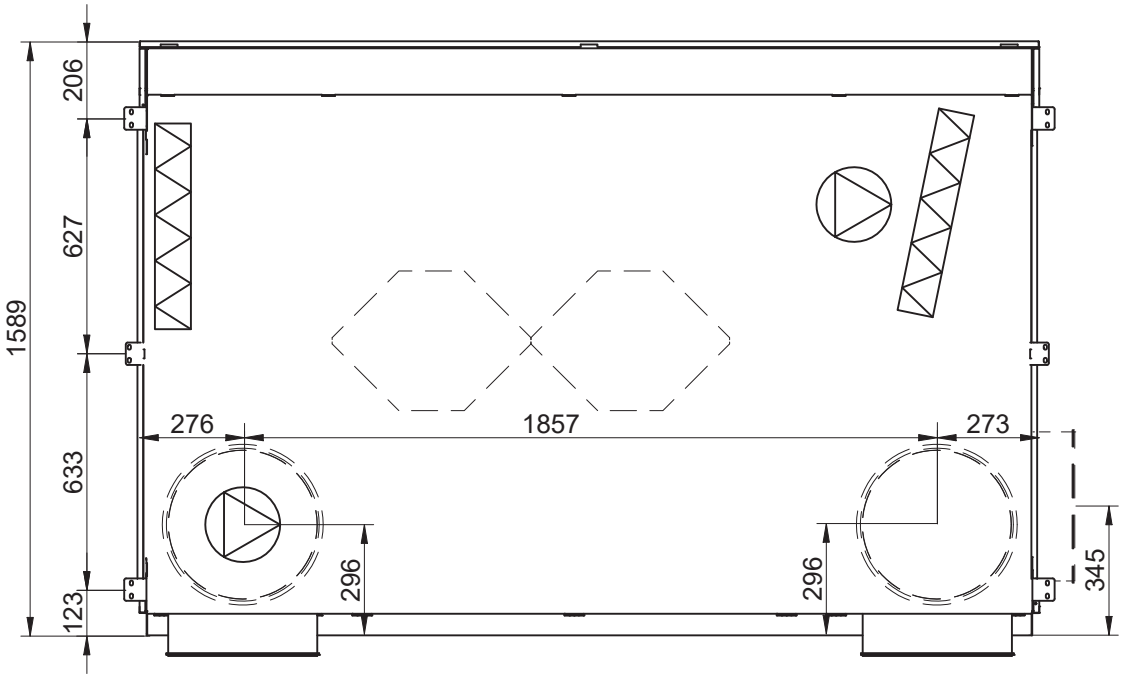
DEX3120 integrated







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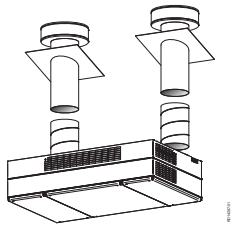
2. Assembly

2.1 Ceiling-mounted or semi-integrated assembly

2.1.1 Ceiling and installation requirements



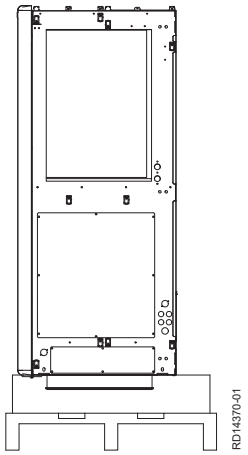
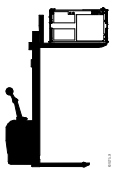
When fitting the air handling unit, the ceiling must be:

- flat
- resistant to vibration
- level
- designed to bear the weight of the unit

The installer is responsible for ensuring that:

- correct and safe installation of the unit in accordance with applicable laws and regulations
- properly used fastening of the given design

2.1.2 Step by step assembly

Steps 1-12	Action
1  	The DEX is delivered in a standing position on the pallet for safe transport. **Note:** ● Check the air handling unit for damage– do not install damaged air handling units. ● Once the plastic has been removed, the DEX air handling unit must be protected against dirt and dust: ● The spigots should be covered until the spigots are connected to the ventilation ducts. ● Whenever possible, keep the unit closed during fitting. ● The 2 transport brackets are also used as wall brackets.
2	Carefully turn the DEX down on the doors and place it on a soft surface to avoid scratches and dents.
3	On the ceiling measure the centre point where the DEX is to go and mark off.
4	Mark the holes for the ceiling brackets and the holes for the ducts.
5	Drill all marked holes. The mounting method, hole sizes etc. will depend on the material of the ceiling.
6	Mount and insulate the duct penetrations in the ceiling.
7	Mount the cowls on the roof.
8	Mount the cover rail behind the doors on the hinge's side.
9 	Lift the DEX into place with suitable lifting equipment (e.g. an electric stacker), protecting the door from scratches with a piece of cardboard or similar between the door and the lifting equipment. See **unit weight** in the technical data section.
10	Check that the DEX is level and fix the unit by tightening all ceiling brackets.
11	Connect the condensation outlet if a condensation pump is mounted in the condensation tray. See section "Connecting the condensation outlet".
⚠ 12	Mount the housing panels: ● Hook the housing panel onto the top of the black brackets ● Lightly press the plate into place ● Screw the screws in the bracket from below on the housing board - **Important for safety reasons!**

2.1.3 Requirements for partially integrated fitting

Fitting and access to control system

When carrying out installation, ensure there is access to the control system. EXHAUSTO recommends that the part of the ceiling next to the control system can be removed.

NB:

The partly integrated DEX extracts a small amount of air above the suspended ceiling, which can cause the filter to soil more quickly than usual. EXHAUSTO recommends leaving a 10 mm gap between the cabinet and the suspended ceiling.

2.2 Connection of condensation outlet

2.2.1 Condensation outlet guide channels (if condensation pump is mounted)

Wall-mounted DEX

On wall-mounted units the condensation outlet is positioned with the outlet passing through the exhaust duct.

Ceiling-mounted DEX

On ceiling-mounted units the condensation outlet is led through the internal guide channels (rubber sleeves) out of the unit to the drain.

The penetrations in the unit must be executed so they remain airtight.

Condensate pump (optional/accessory)

For technical data, see final section.

2.3 Connection of water heating coil HW (option)

2.3.1 Connecting the water

Valves for water connection

It is recommended that shut-off valves are mounted on both water connections to enable the flow to be interrupted for servicing.

The dimensioning of valves, pipes, etc. and the connection of the water heating coil must always be carried out by authorised fitters in accordance with applicable regulations and legislation.

Position of bleeder valve on DEX

See keyed drawing for position of internal bleeder valve.

Automatic bleeder valve

If the water connection is executed with vertical riser, so the heating coil in the DEX3000 is the highest point in the pipe system, it is recommended that an automatic bleeder valve is fitted at the highest point on the supply and return pipes.

3. Electrical installation

Reference to DEX3000 Electrical Installation Guide

All information about the electrical installation, electrical data and EXcon acoustics is gathered in the instructions DEX3000:

- Electrical installation guide
- EXcon control system (online only).

4. Technical data

4.1 Weight, corrosion class, temperature ranges, etc.

Weight

Type	DEX3060 [kg]	DEX3090 [kg]	DEX3120 [kg]
Door	2 x 15 & 1 x 19	2 x 15 & 1 x 20	2 x 20 & 1 x 25
Counterflow heat exchanger	2 x 7	2 x 9	2 x 11
Motor section	6.7	6.7	7.4
Total weight	200	220	300
Partly integrated	220	245	330

Corrosion class, cabinet

Corrosion class	Corrosion class C4 in accordance with EN ISO 12944-2

Temperature ranges

Outdoor air temperature	-40 - +40°C
Ambient temperature (operating)	-30 - +40ºC
Ambient temperature when not in operation (storage, transport)	-40 - +60ºC

The temperature ranges given are dependent on the type of installation, humidity, airflow, the balance between airflows, ducts and insulation and room temperature. If using electrical pre-heating coils, the ambient temperature can be reduced.

At temperatures below -25˚C, use of a thermostatically controlled heater in the automated control box is recommended.

4.2 Condensate pump

Condensate pump

Maximum power consumption	16W
Maximum lifting height	5.0m
Hose dimension	dia. 4/8 mm

4.3 Compact filters

Filter data, DEX3000, Compact files according to ISO16890

Data/Unit	DEX3060 - DEX3090						DEX3120					
Filter standard	ePM_{10} 60%	ePM_1 55%	ePM_1 80%	Coarse 85%	ePM_{10} 60%	ePM_1 55%	ePM_{10} 60%	ePM_1 55%	ePM_1 80%	Coarse 85%	ePM_{10} 60%	ePM_1 55%
	(M5)	(F7)	(F9)	(G4)	(M5)	(F7)	(M5)	(F7)	(F9)	(G4)	(M5)	(F7)
Dimensions: h x w [mm]	410 x 350	410 x 350	410 x 350	410 x 350	410 x 350	410 x 350	450 x 595	450 x 595	450 x 595	450 x 595	450 x 595	450 x 595
Thickness of compact filter [mm]	96	96	96	48	48	48	96	96	96	48	48	48
Filter area [m^2]	0.14	0.14	0.14	0.14	0.14	0.14	0.27	0.27	0.27	0.27	0.27	0.27
Pressure drop [Pa]	29	48	65	23	33	58	35	57	75	29	39	67
Temperature resistant to [°C]	70	70	70	70	70	70	70	70	70	70	70	70

4.4 Air volume calculation

4.4.1 Air volume calculation

Calculations are performed in EXselectPro.

EXSELECTPRO

5. Maintenance and servicing

5.1 Maintenance

During servicing and cleaning, the door on the DEX must be opened.

Disconnect power before opening the door.

The fan motors will run on for up to 5 minutes.

NB Do not use aggressive cleaners or abrasive/sharp objects for cleaning.

5.1.1 VDI 6022

To ensure a permanently hygienic and safe operation of the ventilation system, the service intervals and measures stated in hygiene guideline VDI 6022 must always be observed.

5.1.2 Maintenance intervals

The following chart details the recommended maintenance intervals, The intervals are a guide and based on normal operation. EXHAUSTO recommends maintenance is adjusted to suit the actual operating requirements.

Component	Procedure	twice a year	once a year
Filters	Both filters should be changed at the same time. Filters should be replaced at least every six months.	X	
	The system should be cleaned when the filter is changed.	X	
Filter monitor	Check that all the seals in the filter guide are tight.		X
Seals and sealing strips	Check that all the seals are tight.		X
Fans and any heating coil	Check that the fans run easily.		X
	Check the fans and any heating coil for dirt. Vacuum the parts when carrying out cleaning. See section 2.3.	X	
Counterflow heat exchanger	Check the heat exchanger for dirt and dust.		X
	Clean the heat exchanger, see section on removal and cleaning of heat exchangers.		X
Condensation tray	Check the condensation tray and clean with a damp cloth.		X
	Clean the condensation tray at least once a year. Follow steps 2 and 3 in "Dismounting and mounting of counterflow heat exchangers" for how to remove the condensation tray for cleaning.		X
If a condensation pump is fitted	Check the function of the condensation pump and its correct position in the condensation tray.	X	
If a condensation outlet has been installed	Check that the drain outlet hose is not blocked.		X
	Remount the condensation tray and check that the condensation pump works and that the system is watertight by pouring approximately 0.5 litres of water into the condensation tray.		
Grilles for supply and extract air	Remove the housing panels in front of the grilles annually. Remove dust, e.g. by vacuuming with a brush attachment.		X
Other interior surfaces	Dust and dirt inside the unit is removed with a vacuum cleaner, swept out with a soft broom or wiped off with a soft cloth. Do not use sharp or pointed objects.		X
Exterior surfaces	To clean the HMI, PIR sensor and the external surfaces of the unit, use a soft, well-wrung lint-free cloth. N.B: use only clean water with ordinary dishwashing liquid.		X

5.2 Removing and cleaning the counterflow heat exchangers and heating coils

5.2.1 Removing and cleaning the counterflow heat exchangers and heating coils

Warnings

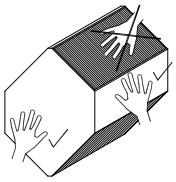
Disconnect power before opening door.

Handle with care

The counterflow heat exchanger fins can be easily damaged - avoid contact with the fins.

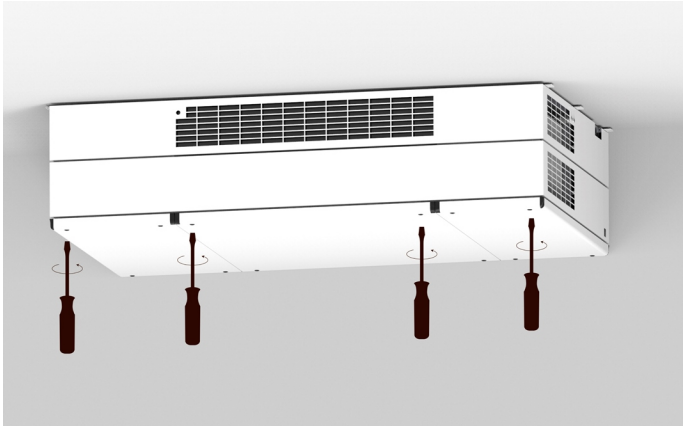
NB Do not use aggressive cleaners or abrasive/sharp objects for cleaning.

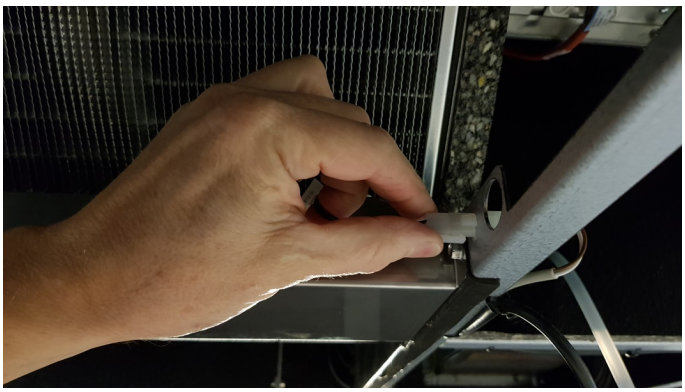
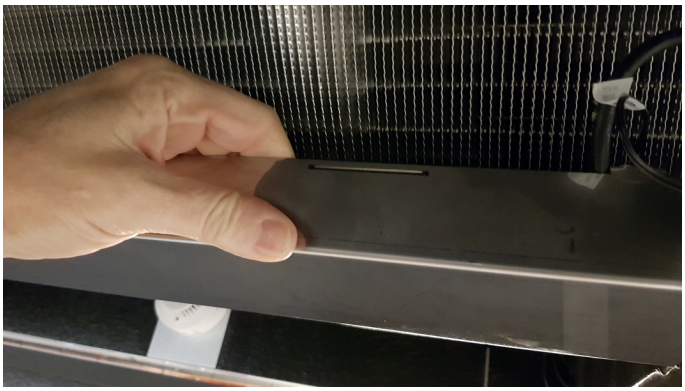
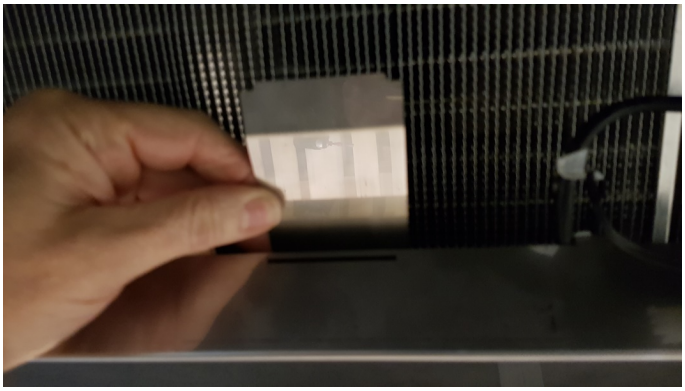
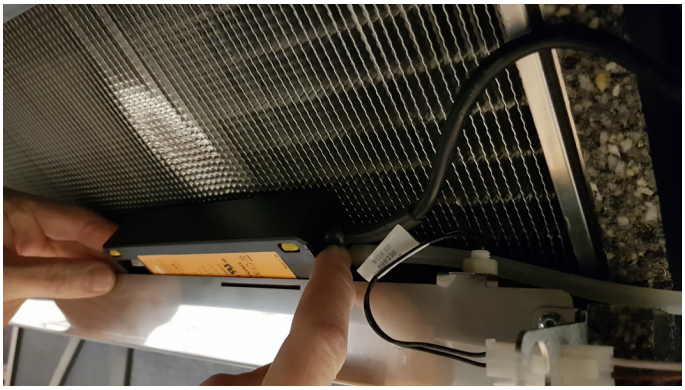
Handling tip

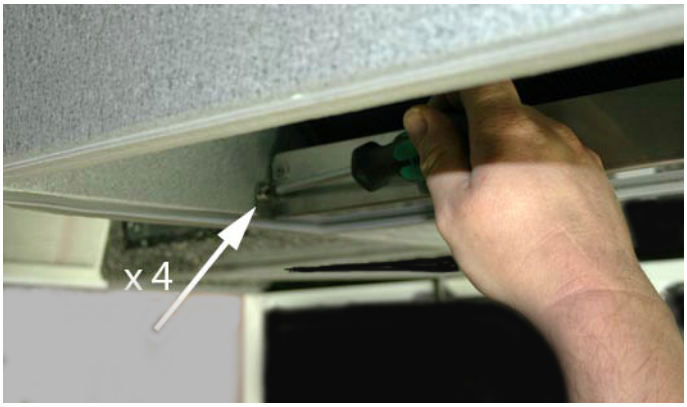
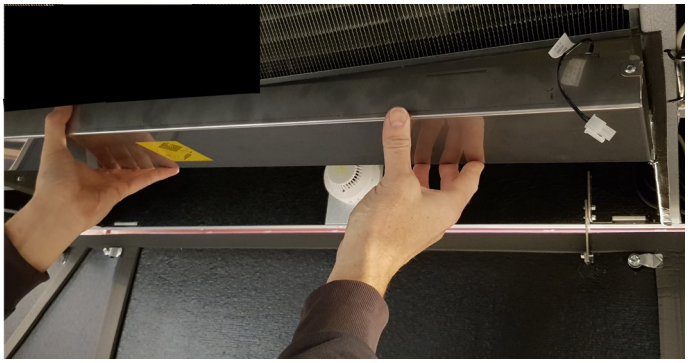
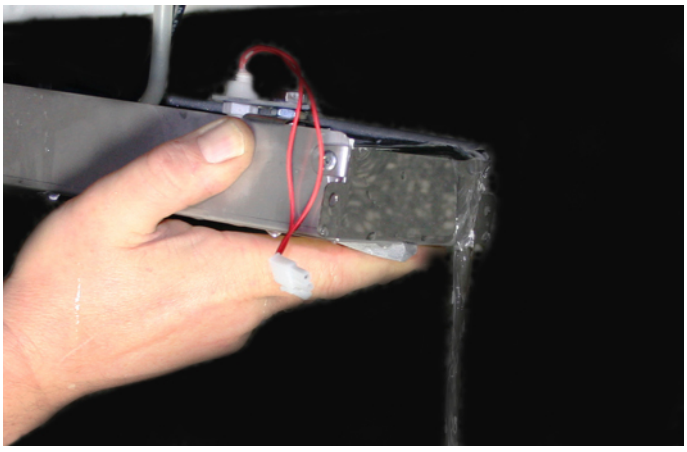


EXHAUSTO recommends: Handling of the heat exchangers is much easier with the vacuum lifter shown here.

Cleaning step-by-step

Dismounting, cleaning and mounting of counterflow heat exchangers and heating coil		
Step	**Action**	**Photo**
1.	**Open the doors:** • Always open the doors by first loosening the screws. • Then loosen the door locks to open the doors. Support the doors until they hang vertically downwards in the hinges.	

Dismounting, cleaning and mounting of counterflow heat exchangers and heating coil		
Step	**Action**	**Photo**
2.	**If the DEX is fitted with a condensation pump**: ● Dismount the level monitoring socket. The socket is located to the left of the DEX next to the condensation tray. ● Press the fixing bracket for the pump down and remove it. ● Lift the condensation pump out of the condensation tray.	   

Dismounting, cleaning and mounting of counterflow heat exchangers and heating coil		
Step	**Action**	**Photo**
3.	**To dismount the condensation tray:** • **NB**: Check whether there is any condensate in the tray before dismounting it – if so, have a bucket ready below the tray. • Undo the four screws that hold the condensation tray, lift off the tray and empty it of any water. • If there is still water in the condensation tray, wipe it with a soft cloth.	  

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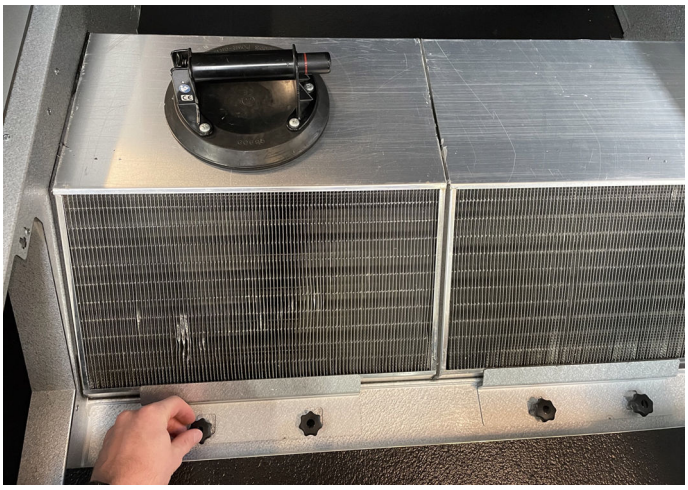
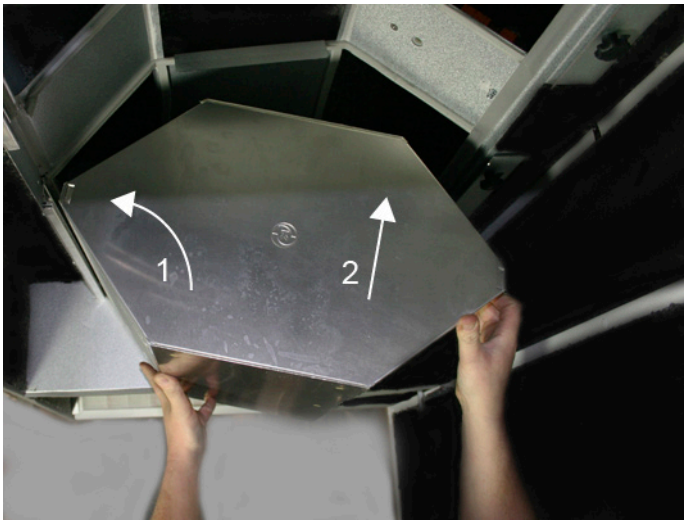
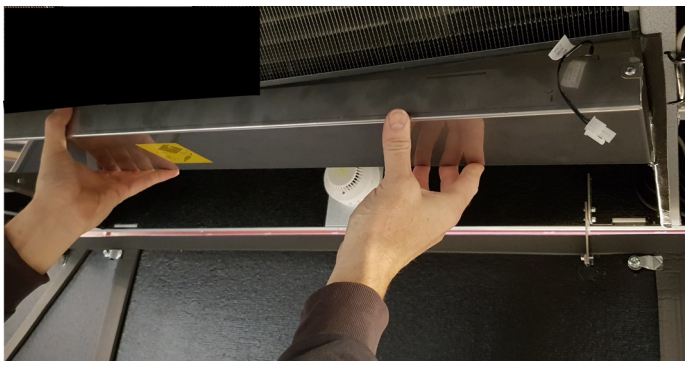
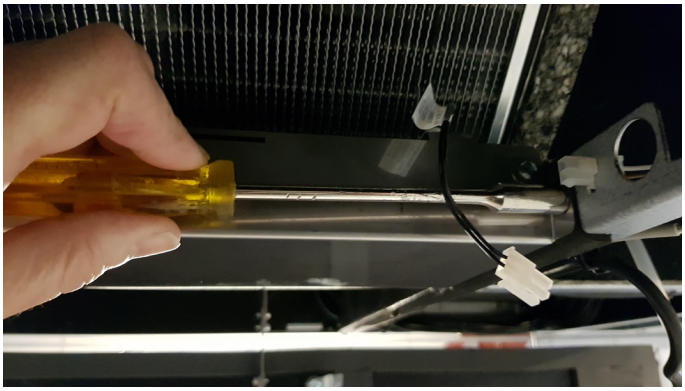
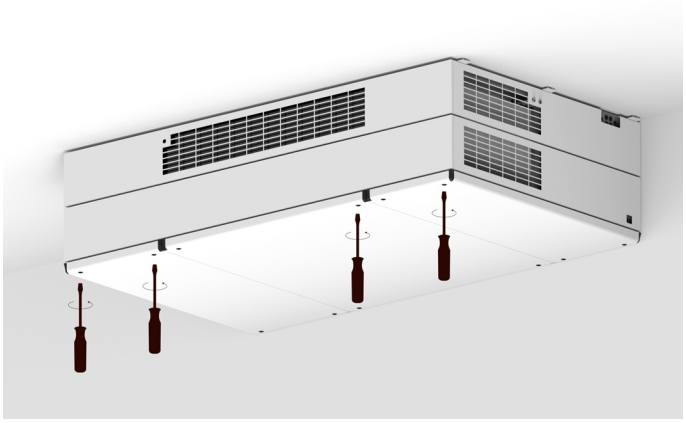
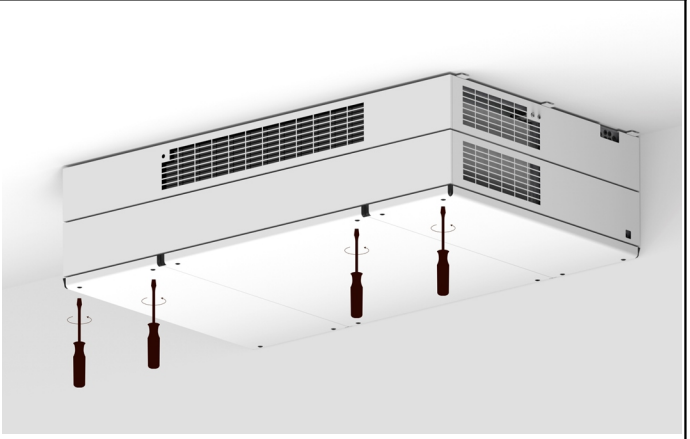
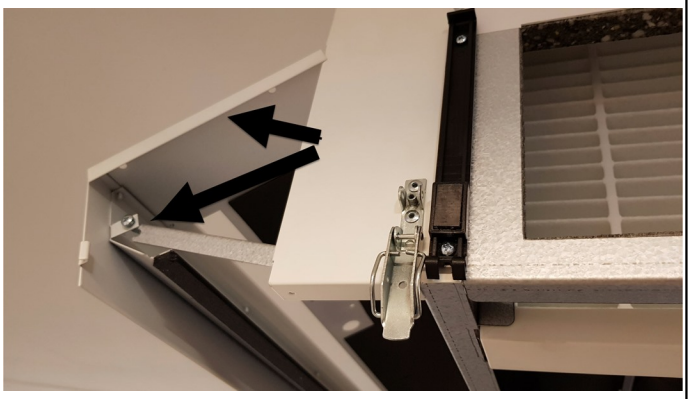
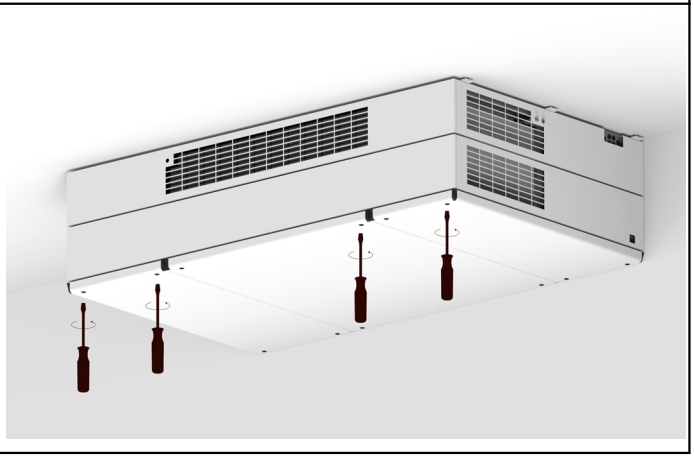
Dismounting, cleaning and mounting of counterflow heat exchangers and heating coil		
Step	**Action**	**Photo**
4.	**To dismount the heat exchanger:** ● In the bypass duct: Turn the clamp clockwise 7 times. ● **Important!** Make sure you have a good grip on the heat exchanger before sliding the bracket aside (possibly with the use of a vacuum lifter) – the heat exchanger can now be taken down. ● The actual bypass valve remains in place while the counterflow heat exchangers are dismounted.	  
5.	**Cleaning the counterflow heat exchanger:** ● Clean the exchanger by flushing with warm water (a high-pressure cleaner can be used). Max. water temperature: 90°C. ● **Note that the fins in the heat exchanger are fragile, so never direct the water jet against the fins at an angle**. ● Check seal and replace if it is worn or deformed.	

Dismounting, cleaning and mounting of counterflow heat exchangers and heating coil		
Step	**Action**	**Photo**
6.	**Cleaning of heating coils and internal parts:** ● Dust and dirt inside the unit is removed with a vacuum cleaner or swept out with a soft broom.	
7.	**Assembly - insertion of heat exchanger:** ● First sit the heat exchanger on the rail opposite the slider bracket and push into place. The slider rail can now be pushed into place and tightened. The finger screws on the bracket holding the counterflow heat exchanger can also be tightened. ● Loosen the clamp in the bypass duct when both exchangers have been repositioned.	
8.	**Mounting the condensate pump in the condensation tray:** ● Place the pump in the condensation tray and press the fixing bracket into place. See Step 2 if needed.	

Dismounting, cleaning and mounting of counterflow heat exchangers and heating coil		
Step	**Action**	**Photo**
9.	**Mounting the condensation tray:** ● Lift up the condensation tray and mount with 4 screws. ● Plug in the level monitoring socket. ● Make sure that the drain outlet hose from the pump is not pinched.	 
10.	**Assembly – when the doors are closed:** ● Lift the doors up and tighten the screws.	

5.3 Opening of partly integrated inspection hatch

Step	Action	Photo
1.	**Open the doors:** ● Always open the doors by first loosening the screws. ● Then loosen the safety guards and open the doors; support the doors until they hang vertically downwards in the hinges.	
2.	● Dismount the housing panels in both end frames. ● Lift the housing panel free of the bottom support and rotate it out at an angle of approx. 35 degrees before lifting it free of the fitting. ● Place the housing panels on a surface that does not scratch.	
3.	● Open the snap lock on both end frames.	

Step	Action	Photo
4.	• First, open up the inspection hatch. • Then tilt the two inspection hatch holders out and down into the locking grille, one on each side.	
5.	**Cleaning and assembly:** • Carry out the necessary inspection. • Remove dust, e.g. by vacuuming with a brush attachment. • Close the inspection hatch and lock the two snap locks. • Mount the housing panels.	
6.	**Assembly – when the doors are closed:** • Lift the doors up and tighten the screws.	

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