GB

VEX370H

Mechanical Assembly - EXact2 control system

Original instructions

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EXHAUSTO

1. Product information

2. Handling

3. Mechanical assembly

4. Electrical installation

5. Maintenance

6. Technical data

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

This instruction manual is for use with EXHAUSTO VEX-type air handling units. Please refer to the product instructions regarding accessories and extra equipment.

The instructions must be fully observed to ensure personal safety and to protect the equipment and ensure its correct operation. EXHAUSTO A/S accepts no liability for accidents caused by equipment not used in accordance with the manual's instructions and recommendations.

Supply air/extract air

These instructions use the following terms as given in DS447-2013:

- Supply air (air blown in)
- Extract air (air removed)
- Outdoor air
- Exhaust air

Left/Right

The term R for Right, indicates the supply air is to the right of the cooling unit, as seen from the operating side. The term L for Left, indicates the supply air is to the left.

Front page: Accessories

The front page of the instruction manual contains a checklist, detailing the accessories delivered with the VEX unit.

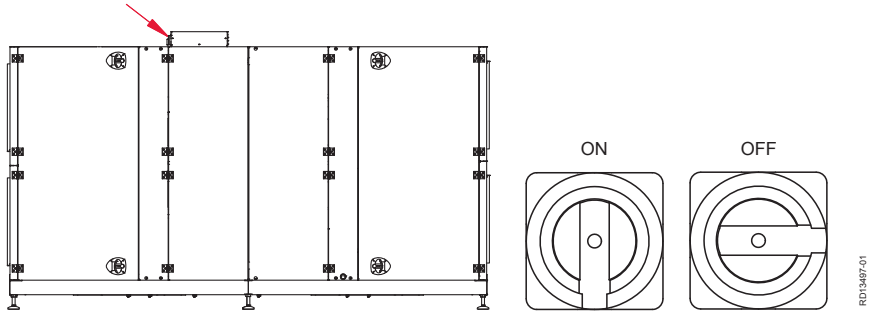
NB

When retrofitting EXHAUSTO accessories, please update the checklist on the front page.

Warnings

Opening the air handling unit

Do not open the service doors until the supply voltage has been disconnected at the isolation switch and the fans have stopped. The isolation switch is positioned on the left side of the connection box on top of the unit.



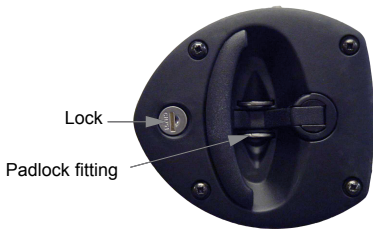
No duct connection

If one or more of the spigots is not connected to a duct: Fit a protective net to the spigots with a maximum mesh width of 20 mm (in accordance with EN294).

Lock the air handling unit during operation

The VEX unit must always be locked during operation:

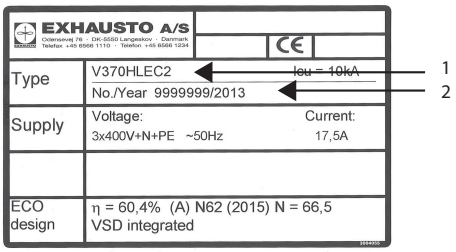
- Use the cylinder lock in the handle. **Remember** to remove the key from the lock.
- Or use a padlock. Use the handle's built-in padlock fixture



Rating plate

The VEX unit rating plate shows:

- VEX model (1)
- Production order no. (2)



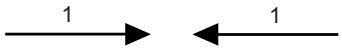
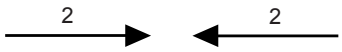
NB

Always have the production number ready when contacting EXHAUSTO A/S.

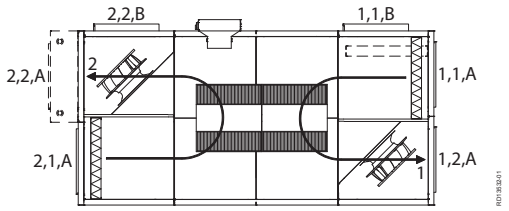
1. Product information

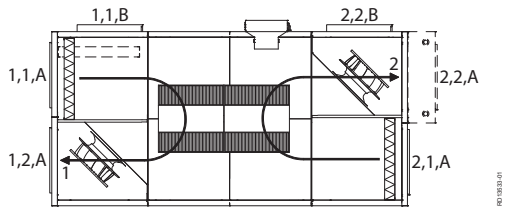
1.1 Designations used in these instructions

Model overview

Elements	Explanation
	Fan
	Compact filter
	Bag filter
1,1,A or B	Extract air spigot NB: In cases where the unit has two spigots (extract air/ flue gases), the filter is always located by the extract air spigot
1,2,A	Exhaust air spigot
2,1,A	Outdoor air spigot
2,2,A or B	Supply air spigot
	Air direction, extract air
	Air direction, supply air

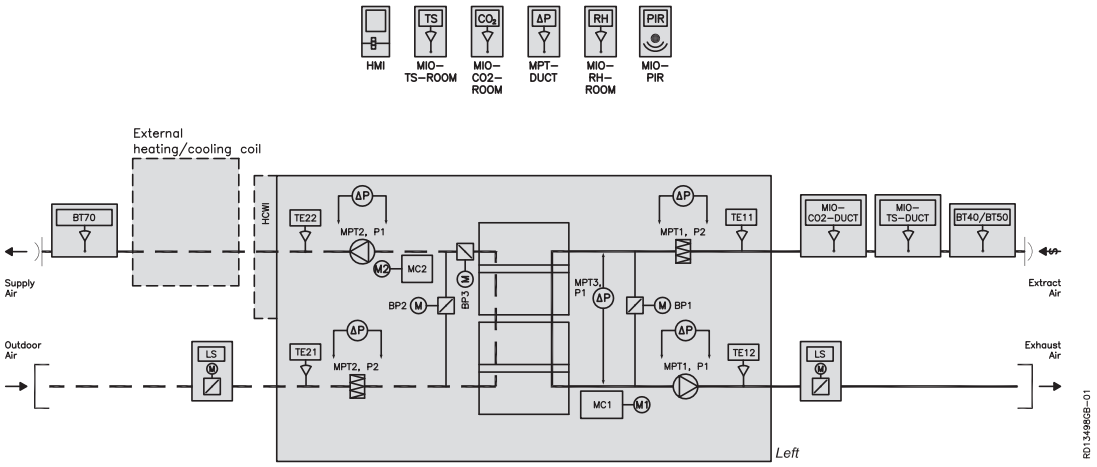
NB The sketch shows compact filters

Fan placement	Air directions
LEFT	

Fan placement	Air directions
RIGHT	

NB Spigot location B option not available with outdoor models.

1.1.1 Designations used in these instructions



The simplified diagram shows a VEX unit with LEFT fan placement.

Component	Function
BP1	Bypass damper extract air/exhaust air
BP2	Bypass damper outdoor air/supply air
BP3	Bypass shut-off dampers supply air
BT40/BT50	Fire thermostat, 40℃/50℃ (extract air)
BT70	Fire thermostat 70℃ (supply air)
MC1	Motor control, motor 1 (extract air)
MC2	Motor control, motor 2 (supply air)
HMI	Control panel
HCWI	Integrated water heating coil
LS	Closing damper, outdoor air/exhaust air
M1	Extract air motor
M2	Supply air motor
MIO-CO_2-DUCT	CO_2 sensor, duct
MIO-CO_2-ROOM	CO_2 sensor, room
MIO-PIR	PIR sensor
MIO-RH-ROOM	Humidity sensor

Component	Function
MIO-TS-ROOM	Temperature sensor, room
MIO-TS-DUCT	Temperature sensor, extract air (external)
MPT1, P1	Airflow control, extract air
MPT1, P2	Filter monitor, extract air
MPT2, P1	Airflow control, supply air
MPT2, P2	Filter monitor, outdoor air
MPT3, P1	Ice detection
MPT-DUCT	Pressure transmitter, constant pressure regulation
TE11	Temperature sensor, extract air
TE12	Temperature sensor, exhaust air
TE21	Temperature sensor, outdoor air
TE22	Temperature sensor, supply air

1.2 Application

Comfort ventilation

EXHAUSTO VEX is used for comfort ventilation tasks. Operating temperature range for the unit – see section "Technical data".

Prohibited uses

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

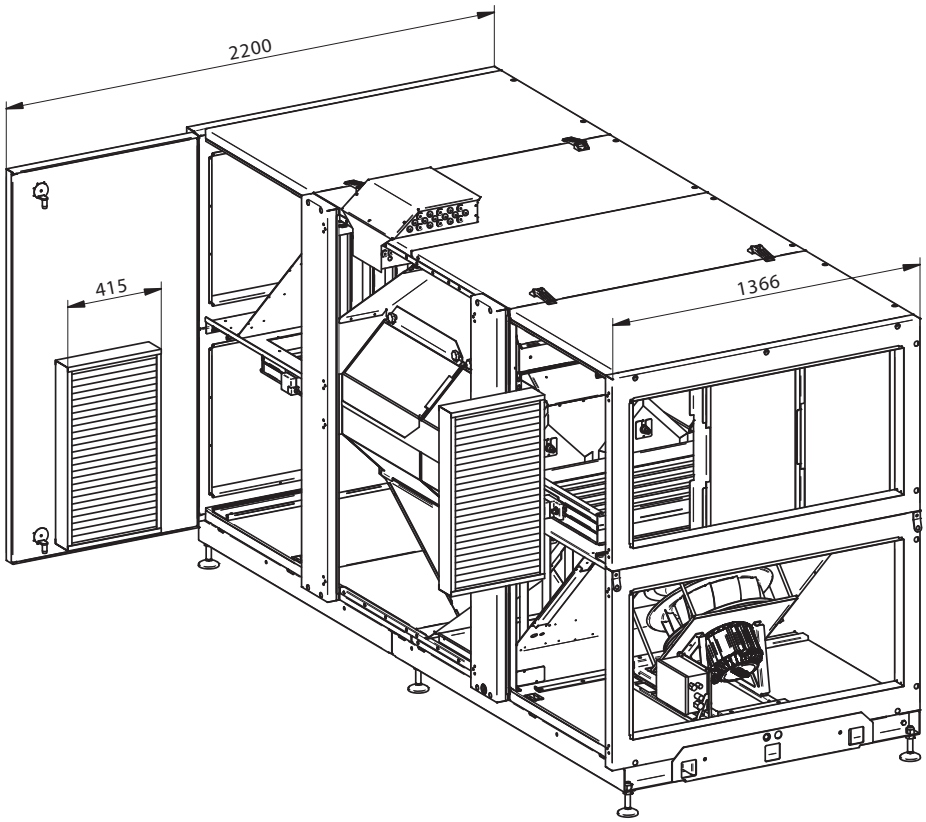
1.3 Location requirements

Positioning

The air handling unit is designed for indoor fitting. The air handling unit can be ordered for outdoor installation (accessory Outdoor, OD).

1.3.1 Space requirements

The drawing below indicates how much space is required to open the side-mounted doors for servicing, replacing filters, cleaning, etc. The drawing shows compact filters.



NB For servicing purposes, a free height of at least 200 mm is required above the unit's connection box.

1.3.2 Requirements for underlying surface

When floor-mounting the unit, the surface must be:

- level (+/- 10 mm per metre)
- hard
- resistant to vibration

The VEX unit leg height can be adjusted: 55–110 mm.

1.3.3 Outlet

A condensation outlet must be installed in the immediate vicinity of the unit. See also "Mechanical fitting" section.

1.3.4 Requirements for duct system

Silencers The duct system must be fitted with silencers specified by the Project Manager, which meet the requirements of the operating area.

Bends A duct bend may be fitted immediately after the unit, because the airflow in the spigot has a uniformly moderate speed profile, which results in negligible system pressure loss.

Insulation

⚠ **The duct system must be insulated against:**

- **condensation**
- **sound leakage**
- **heating/cooling losses**

Condensation

Condensation in the ducts may occur when the exhaust/outdoor air has high humidity. EXHAUSTO recommends a condensation outlet is also fitted at the lowest point in the ducts.

No duct connection

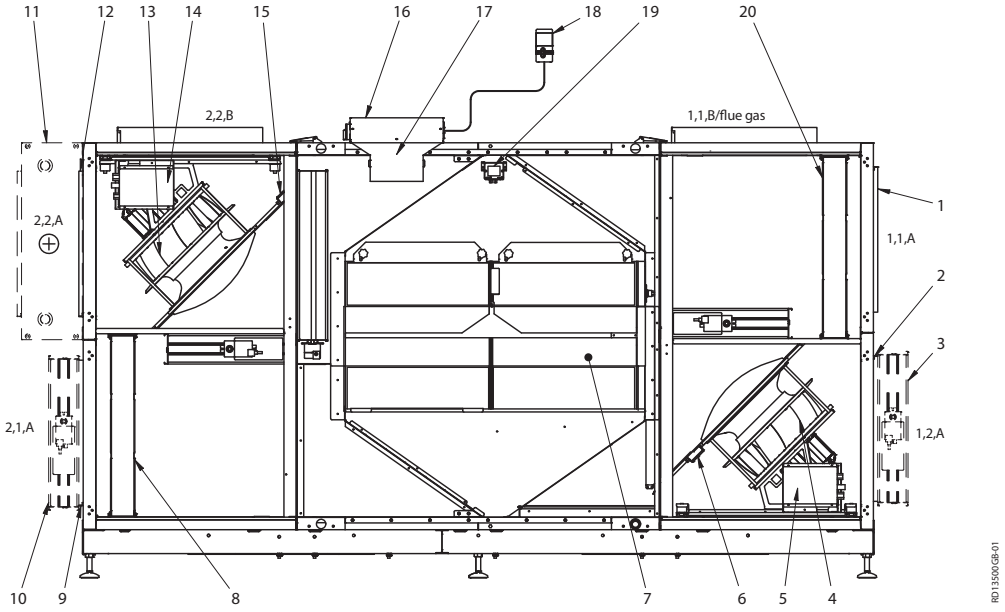
If one or more of the spigots is not connected to a duct: Fit a protective net to the spigots with a maximum mesh width of 20 mm.

1.4 Description

1.4.1 Design

Layout drawing, Left model

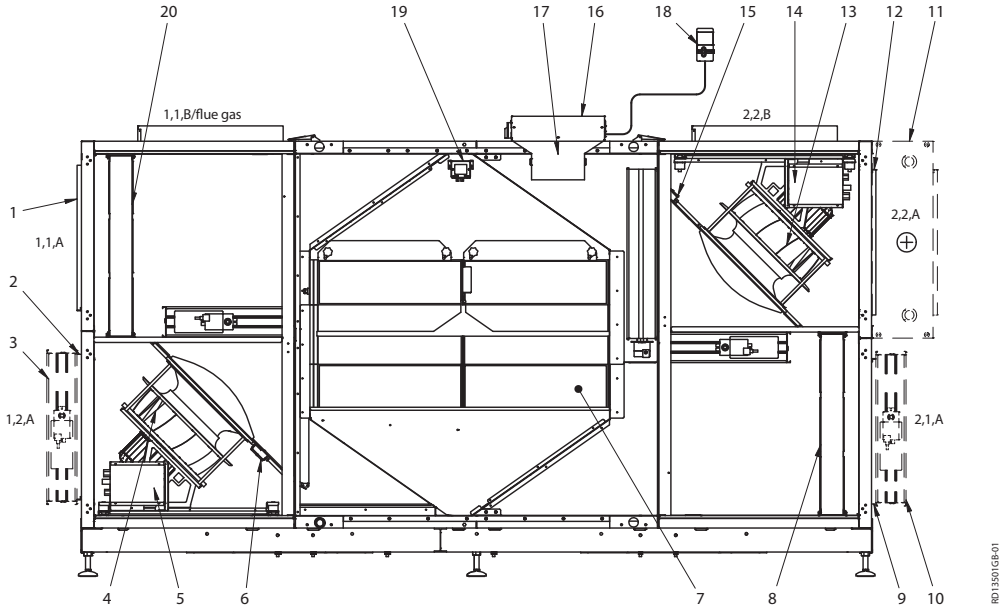
The drawing below illustrates the construction of the unit, without doors:
The drawing shows compact filters.



Layout drawing, Right model

The drawing below illustrates the construction of the unit, without doors:
The drawing shows compact filters.

EXHAUSTO



Pos. no.	Part	Function
1	Spigot 1,1,A	Extract air spigot The spigot can also be positioned on the top of the unit (1,1,B). Does not apply to units designed for outdoor fitting
2	Spigot 1,2,A	Exhaust air spigot
3	Closing damper LS	Closing damper, exhaust air, LSA (accessory).
4	Fan unit, exhaust air	Removes "stale" air
5	Motor control, extract air fan	Variably adjusts fan
6	MPT1	Measurement of pressure in extract air duct
7	Counterflow heat exchanger	6 counter flow heat exchangers made from aluminium, conduct the heat from extract air to supply air
8	Outdoor air filter	Filters outdoor air.
9	Spigot 2,1,A	Outdoor air spigot
10	Closing damper LS	Closing damper, outdoor air, LSF (accessory).
11	Integrated heating coil	Heats supply air if heat recovery is insufficient (accessory).
12	Spigot 2,2,A	Supply air spigot. The spigot can also be positioned in the top of the unit (2,2,B). Does not apply to units designed for outdoor fitting
13	Fan unit, supply air	Blows air into the room
14	Motor control, supply air fan	Variably adjusts fan
15	MPT2	Measures pressure in supply air duct
16	Connection box	Connection box for supply voltage, external ventilation components, HMI panel, BMS and Ethernet
17	Connection box	Cover plate
18	HMI panel	Operation of the control system

Pos. no.	Part	Function
19	MPT3	Measures pressure loss across the counter flow heat exchanger
20	Extract air filter	Filters extract air.

Cabinet

The inside and outside of the cabinet is made of Aluzinc® The cabinet is insulated with 50 mm mineral wool.

Fans

The unit contains two centrifugal fans for exhaust air and supply air.

Counter flow heat exchangers

The unit's counterflow heat exchangers are made of aluminium and are highly efficient. The counter-flow heat exchangers can be taken out and cleaned. See section "Servicing".

Filters

There are integral panel filters on both the extract air and outdoor air sides.

Bypass design

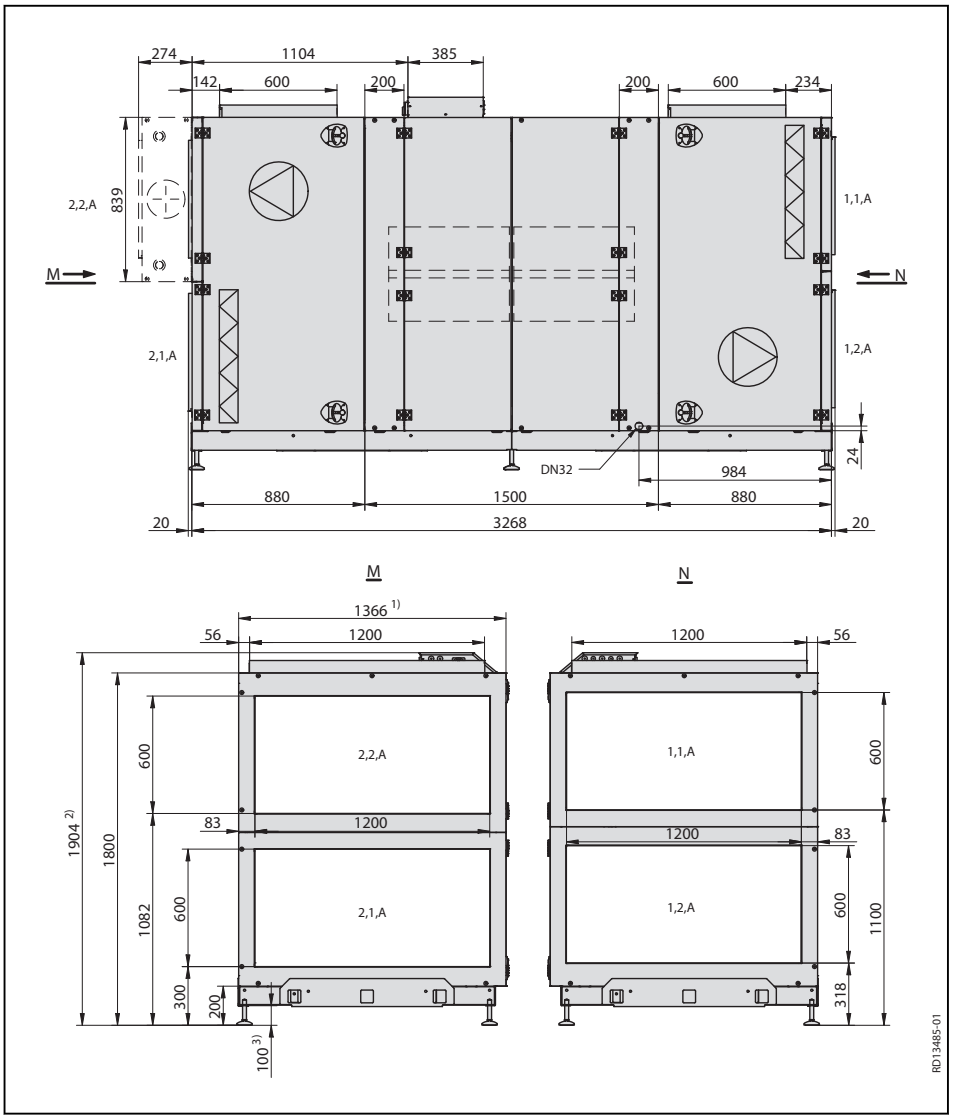
The unit has a built-in double modulating bypass. In the case of summer operation without heat/cold recovery, both outdoor air and extract air are directed around the heat exchanger to reduce energy consumption.

1.5 Main aim

1.5.1 Dimensional drawing

The sketches show compact filters.

VEX370H, Left



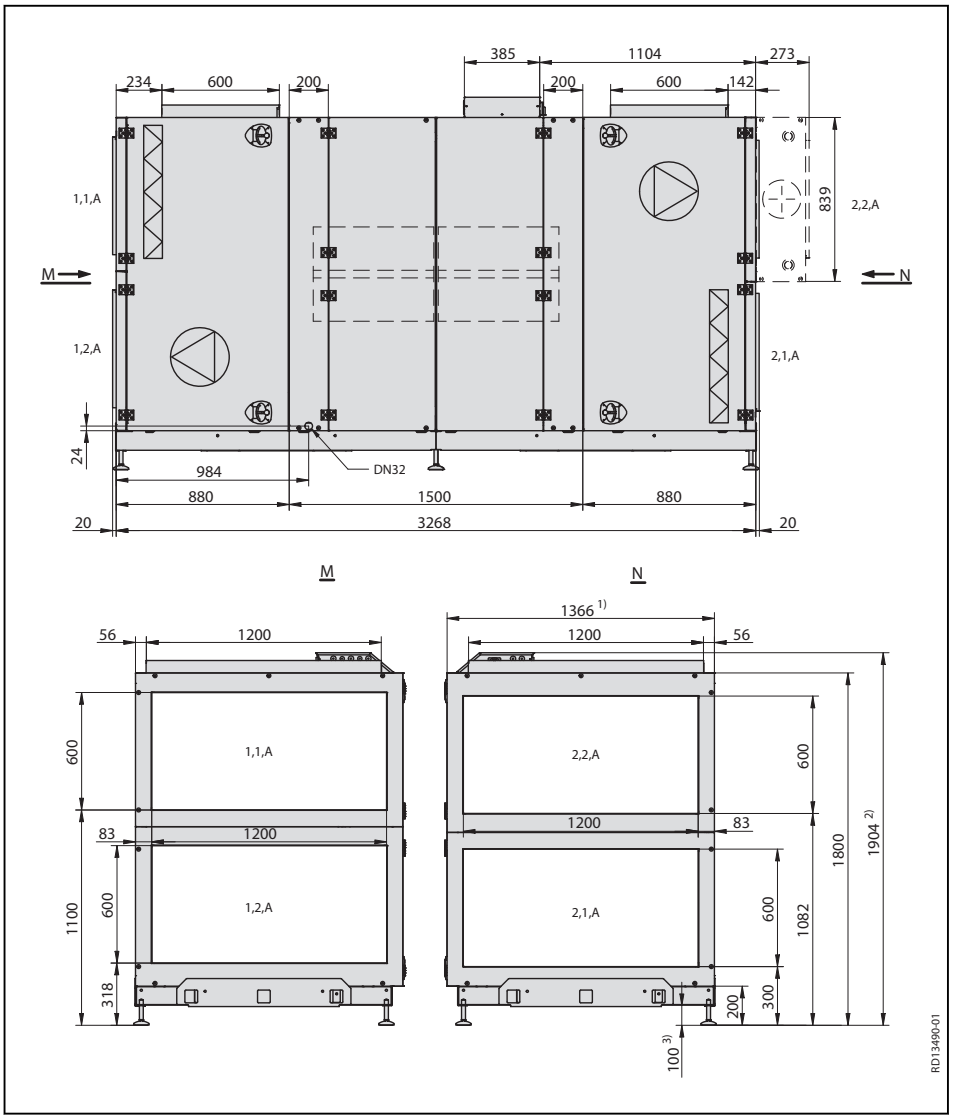
1) Allow for space in front of the VEX unit, so the doors can be opened

2) Allow for free height over the VEX unit, so the connection box can be serviced

3) The legs under the VEX unit can be adjusted for height between 55mm and 110mm.

See "Space Requirements" section.

VEX370C, Right



1) Allow for space in front of the VEX unit, so the doors can be opened

2) Allow for free height over the VEX unit, so the connection box can be serviced

3) The legs under the VEX unit can be adjusted for height between 55mm and 110mm.

See "Space Requirements" section.

2. Handling

2.1 Unpacking

2.1.1 Once the VEX has arrived

- Check the air handling unit and any supplied accessories for any transport damage immediately on arrival at the assembly site.
- Check that the delivery is complete.

If there is damage or something is missing, point this out immediately to the haulier.

Supplied components

The following components are supplied:
- VEX unit with associated base.
- Supplied accessories (as indicated in the checklist on the front page of the instructions)

Packaging

The unit is delivered in three sections on separate disposable pallets; packed in cardboard and clear plastic. The base is packed in a wooden box.

Unpacking

Depending on the installation site's spatial limitations, unpacking can be done in the following manner:
- Unpack and assemble the base and sections and subsequently transport the VEX unit to the site or
- set up the base at the installation side and mount the sections on the base afterwards.

Base assembly is described in section 3.1.

NB

Once the plastic has been removed, the unit must be protected against dirt and dust:
- **The covers on the spigots must not be removed until the spigots are connected to the ventilation ducts.**
- **Whenever possible, keep the unit closed during fitting.**

The unit should be cleaned before it is used.

Once the VEX unit is fitted, it must be checked and thoroughly cleaned. All dust, debris and metal shavings must be vacuumed up.

2.1.2 Weight

Sections	Weight
Fan section	2 x 156 kg
Counter flow heat exchanger section	310 kg
Base	80 kg
Total weight	702 kg

2.1.3 Weight

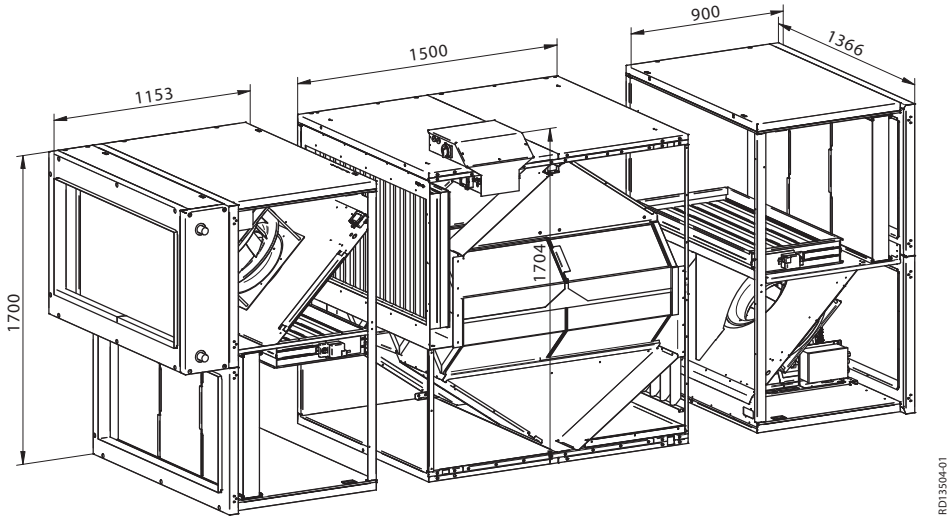
Sections	Weight
Fan section	2 x 150 kg
Counter flow heat exchanger section	260 kg
Base	75 kg
Total weight	635 kg

2.2 Transport

2.2.1 Passage through openings

The sections' principal dimensions

Measurements are based on the exact dimensions of the VEX unit.
The VEX unit is shown with compact filters.



Width - fan sections

The list below shows how large an opening has to be for the fan sections to pass through:

If the opening width is	Then
Less than 900 mm	The unit will not pass through
Between 900 and 1,153 mm	For fan section with integrated heating coil: ● disassemble the integrated heating coil as described in the section "Disassembly of integrated heating coil".
Greater than 1153 mm	The unit can pass through

Width - heat exchanger section

The list below shows how large an opening has to be for the heat exchanger section to pass through:

If the opening width is	Then
Less than 1,366 mm	passage is not possible, unless the VEX is constructed and delivered in a split version (agreed at time of order). See separate instructions.
Greater than 1,366 mm	The unit can pass through

VEX370 supplied in split version

VEX370 can be ordered as a SPLIT 1 or SPLIT 2 model:

Model	Conditions
SPLIT 1	• VEX370 is supplied with normal fan sections, but the heat recovery section can be separated for transport through door openings of 900 x 2000 mm • The VEX is assembled and joints sealed on site by the installer in accordance with the supplied instructions
SPLIT 2	• VEX370 is supplied in assembed state but without joint sealing • The VEX is ready for disassembly, transport into the building, reassembly and joint sealing by certified personnel

2.2.2 Internal transport with reduced weight

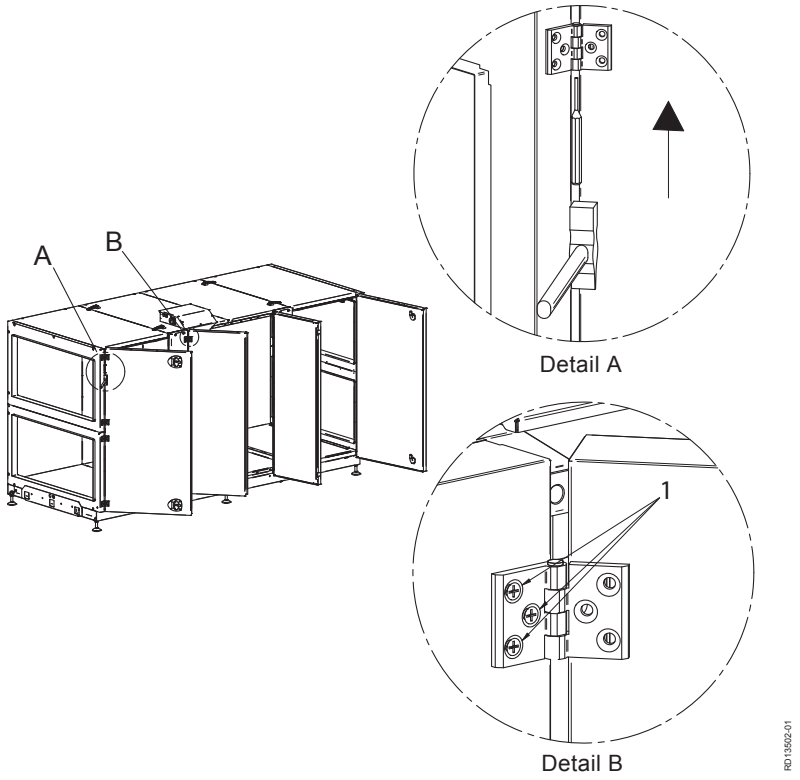
Weight reduction

The weight can be reduced during transport by removing the service doors, fan units and counter flow heat exchanger. The table below shows the how much weight is reduced when the subcomponents are removed.

Section	Subcomponents	Weight
Fan section, 2 x 220 kg		
	Fan section, empty cabinet	150 kg
	Door	24 kg
	Fan unit	40 kg
	Compact or bag filters, 3 items of 2 kg weight	6 kg
Exchanger section, 1 x 430 kg		
	Exchanger section, empty cabinet	285 kg
	Counter flow heat exchangers, 6 x 19 kg	114 kg
	Doors, 2 x 15.5 kg	31 kg
Integrated heating coil HCWI, 58 kg		
Base, 1 x 90 kg		
Total weight VEX370 unit		1018 kg

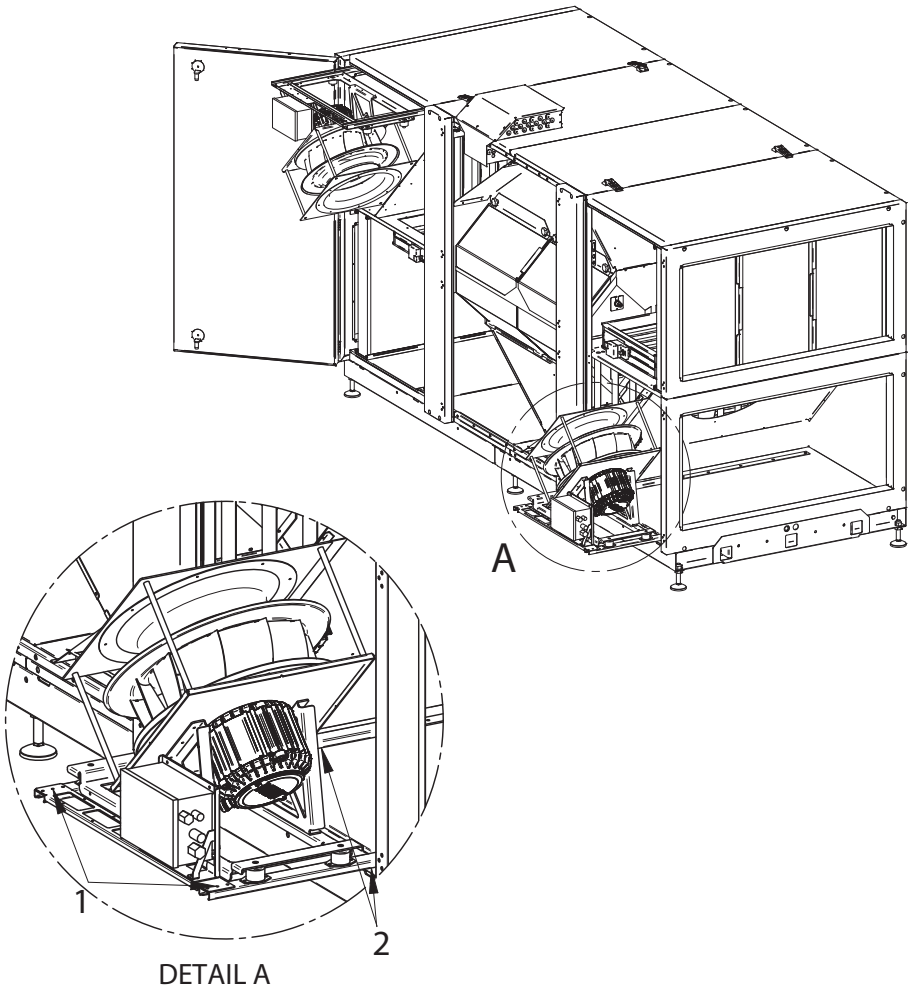
Removing the service doors

To remove the service doors:



A	How to remove the doors (2 in no.) <u>to the fan sections:</u> ● Open the door ● Tap the hinge door pin out from below using a small pin bolt or similar ● Lift the door off (**Note - weight 23.5 kg**).
B	How to remove the doors (2 in no.) <u>to the heat exchanger sections:</u> ● Open the door ● Unscrew the door hinge from the front panel (1) and take the door off.

To remove the fan unit

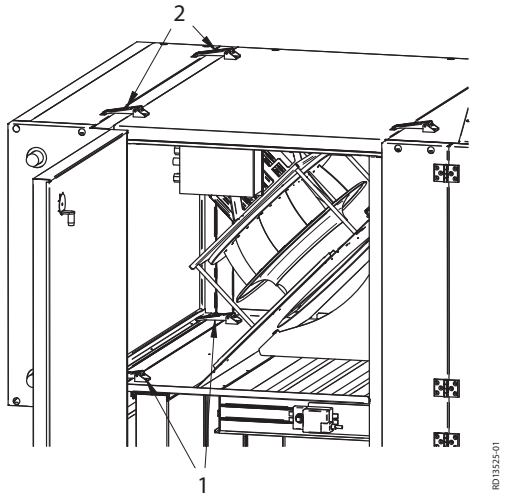


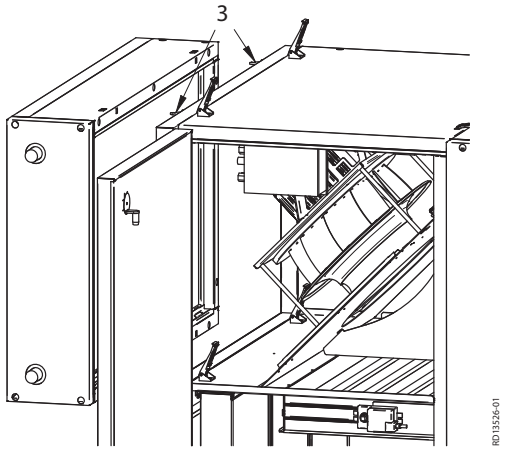
Step	Action
1	Remove the fixing screws (1) on the sliding rail (out towards the operating side)
2	Cut the cable ties holding the motor cable and the cable ties holding the measuring hose
3	Pull the fan unit out to the end-stop (a screw on each rail acts as a stop)
4	Remove the supply cable and the control cable in the motor control.
5	Remove the two end-stops (screws one on the sliding rail (2)). The fan unit can now be lifted off. **NB: A single fan unit weighs 40 kg.**

Removing the counter flow heat exchangers

See section "Servicing"

2.2.3 Disassembly of integrated heating coil, HCW370I





Step	Action
1	Support the heating coil before disassembling it. **NB: The heating coil weighs 58 kg. - make sure there are at least two persons to lift the coil off.**
2	Open the door of the fan section nearest the heating coil and release the two snap locks (1) inside the VEX.
3	Then release the two snap locks (2) on the top
4	The heating coil can now be lifted from the four guide pins (3).

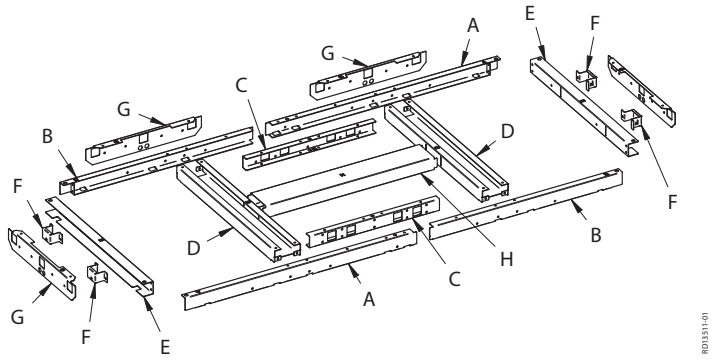
3. Mechanical assembly

3.1 Installing the unit

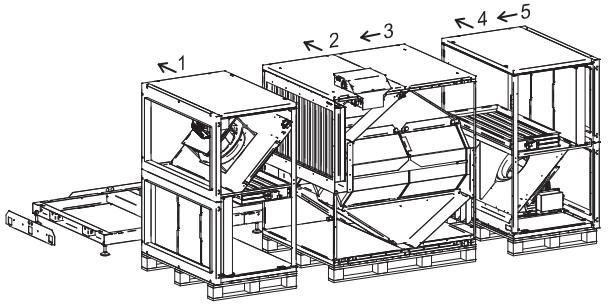
3.1.1 Assembly instructions

The assembly of VEX370 is divided into 4 steps as shown below, see the following sections for a detailed description of each step.

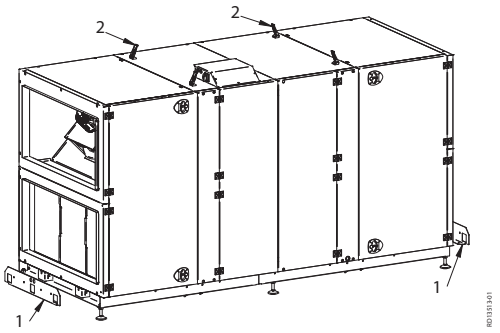
Step 1, assemble the base



Step 2, push the sections onto the base



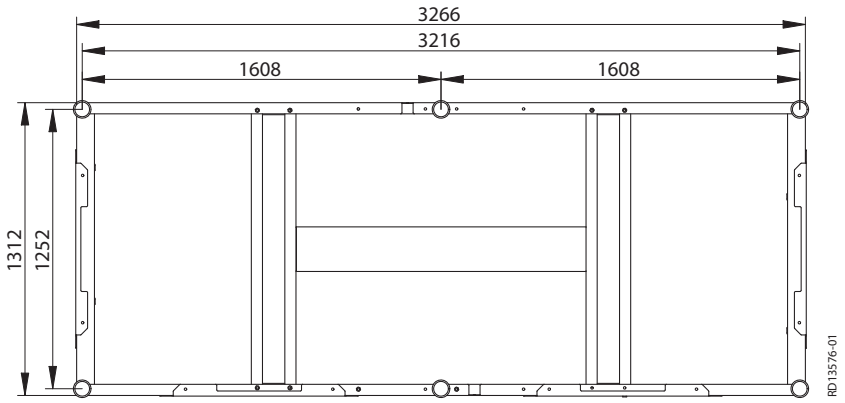
Step 3 - 4, tighten the VEX together



Base

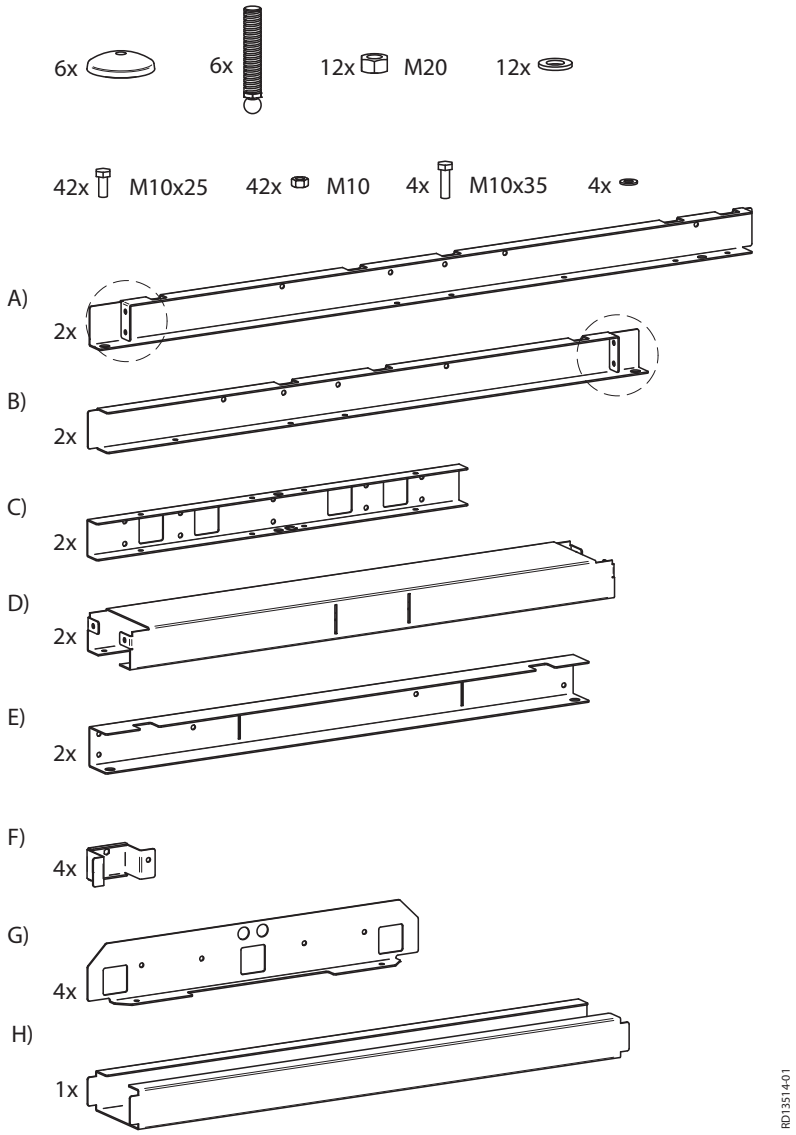
The unit must be assembled on the base – this is essential to ensure its airtightness.

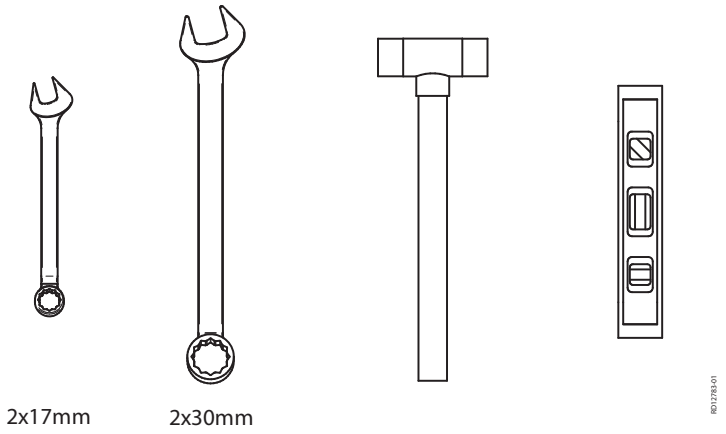
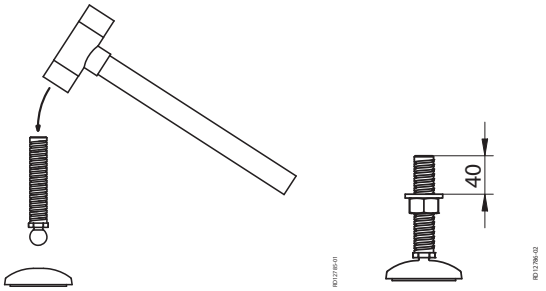
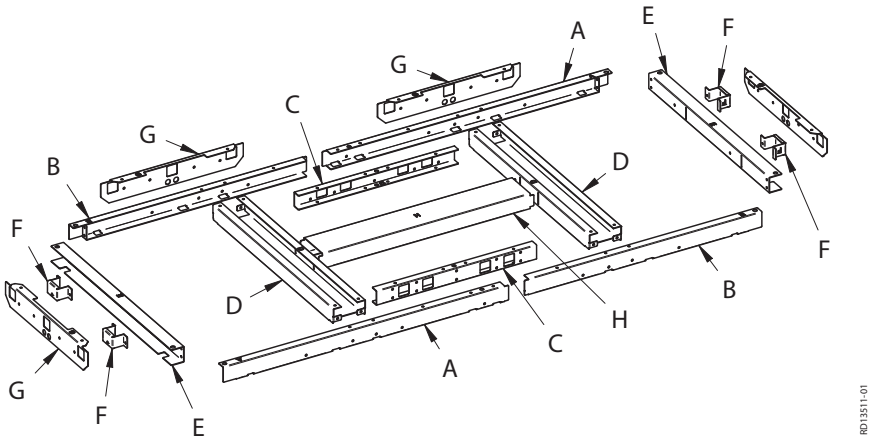
Dimensional drawing

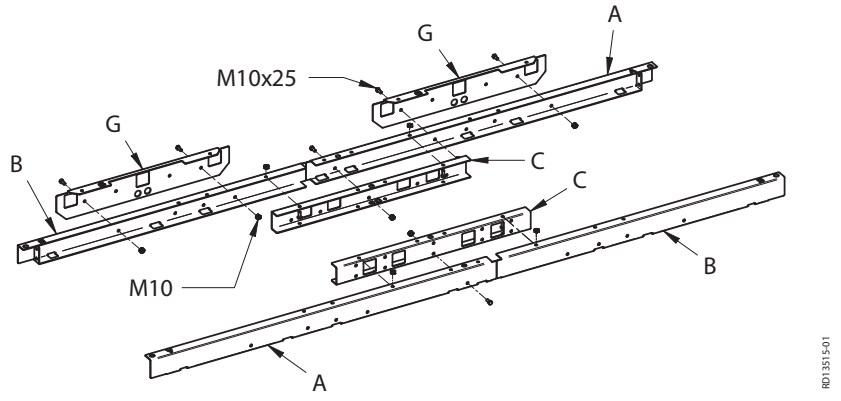
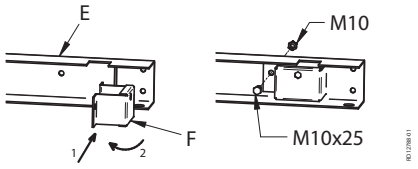
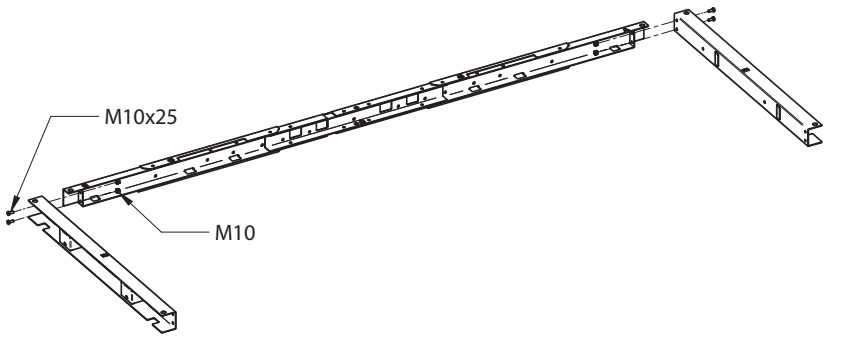
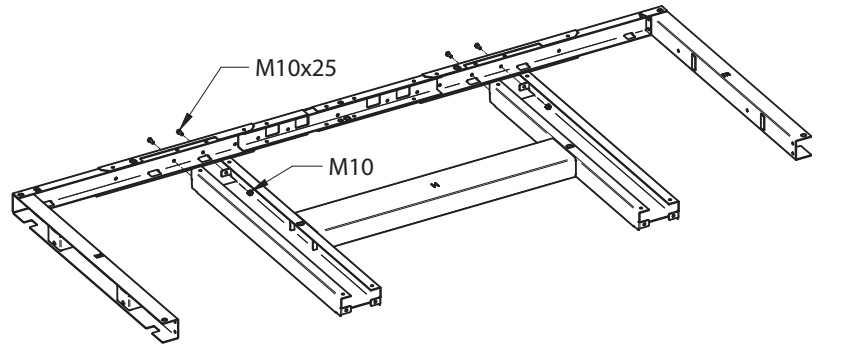


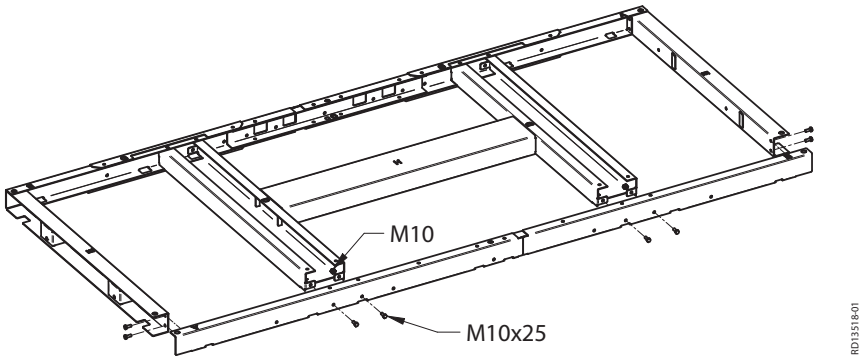
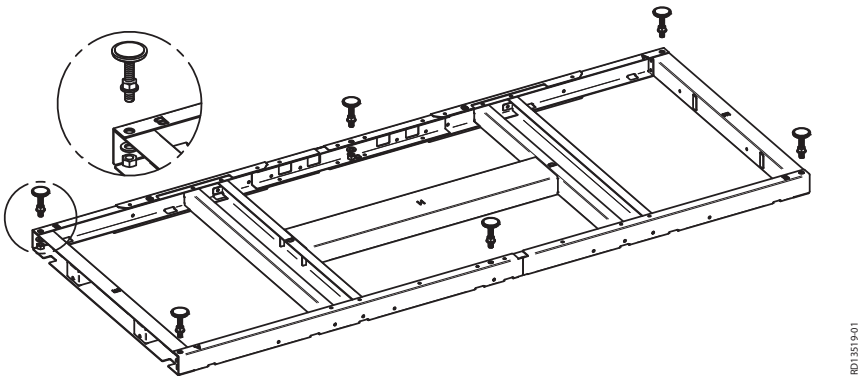
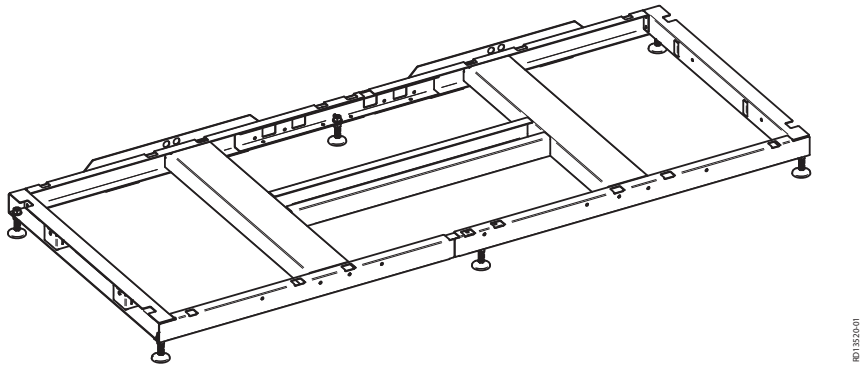
3.1.2 Step 1–4

Step 1, Base: Assemble the base as shown in the drawing below.

Base assembly	Drawing
The base consists of the following parts:	

Base assembly	Drawing
The following tools are required:	
Assemble the base levelling bolts, by tapping the threaded bar securely into the foot. Screw a nut onto the threaded bar and put a washer on.	
Lay the base parts on the floor with the top facing downwards, as shown in the illustration.	

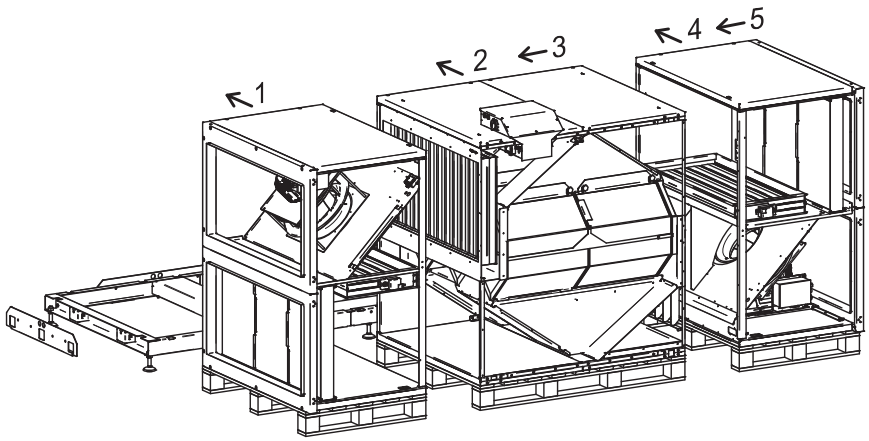
Base assembly	Drawing
Assemble the long pieces: • Front long piece: Join A, B and C with nuts and bolts. • Rear long piece: Join A, B, C and G with bolts and nuts.	
Fit the two small tension fittings (F) on each side of the short members (G) and secure firmly using nuts and bolts.	
Firmly screw the two short members (G) to one of the long pieces using nuts and bolts.	
Fix the spacers with M10 nuts and bolts.	

Base assembly	Drawing
Screw the last long piece on using nuts and bolts.	
Screw the levelling bolts on the base with M20 nuts and washers	
Turn the base with legs down and place it so that the tension fittings face away from the operating side	

It is important that the base is levelled before the VEX unit is placed on the base. Adjust the levelling bolts, so that the base is horizontal.

Step 2, VEX sections

Manoeuvre the sections onto the base by pushing them directly from the pallet onto the base.

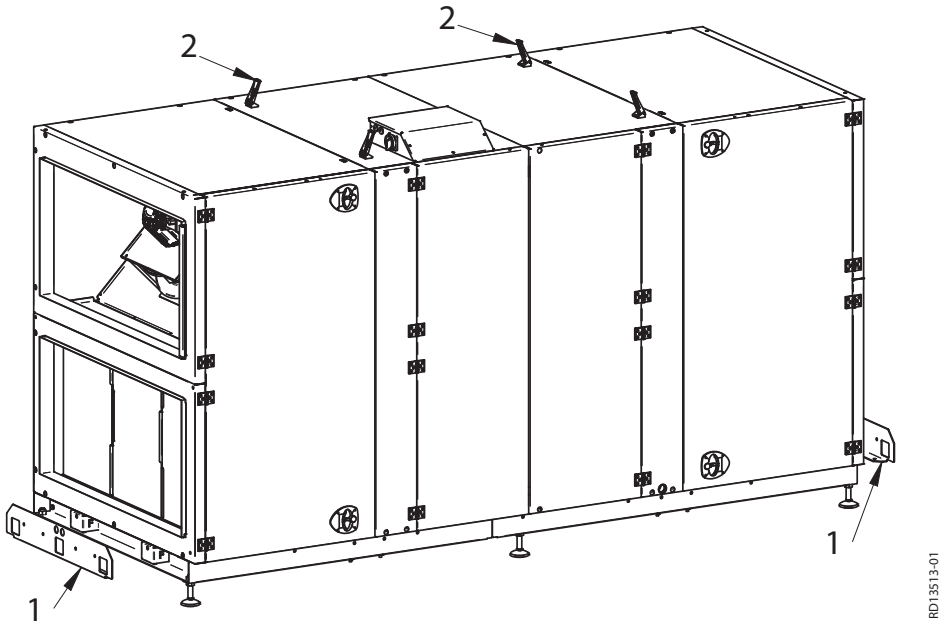


1. Push a fan section onto the base first
2. Next, push the exchanger section onto the base
3. Push the sections together with the guide pins engaging
4. Push the last fan section onto the base
5. Push the sections together with the guide pins engaging

Step 3, Assembly panels and fittings

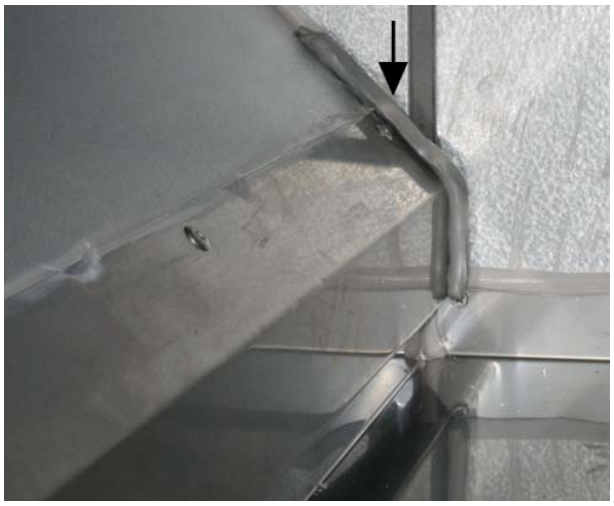
When all three sections are on the base:

1. Tighten the two assembly panels against the VEX unit using the four bolts (M10 x 35)
2. Close the four closures on the top of the VEX unit (2).



Step 4, Smooth joints at the condensation tray

To ensure joints are sealed at the condensation tray, the transition between the bottom motor and the condensation tray must be sealed:

Action	
Smooth the two joints (front and rear on the transition) with a finger. (The arrow shows the rear joint)	

3.2 Condensation drain

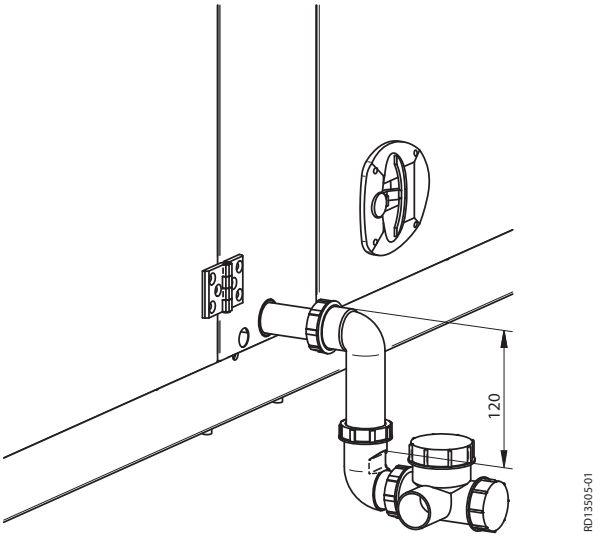
3.2.1 Establishment of condensation outlet

Location

The following two drawings show examples of how the drain from the condensation outlet can be established and the correct dimensions for the water trap: For correct, problem-free operation, it is recommended that a siphon is fitted. This also applies to outdoor versions of air handling units.

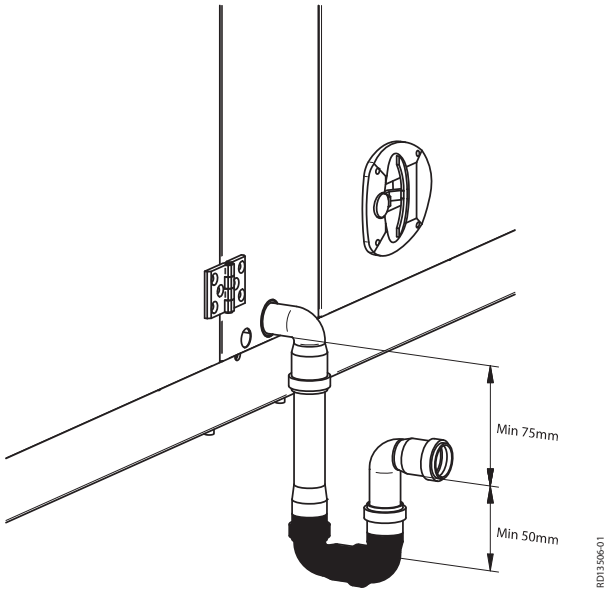
Solution with Siphon water trap (accessory)

The Siphon water trap is easy to install and service.



Solution with HT pipe

Use HT-pipe (HT, DN32, DIN4102), if the above solution is not employed (not supplied by EXHAUSTO).

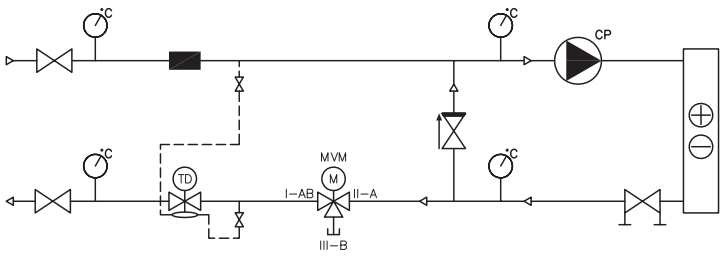
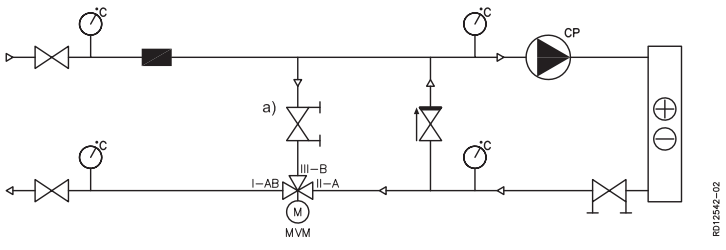


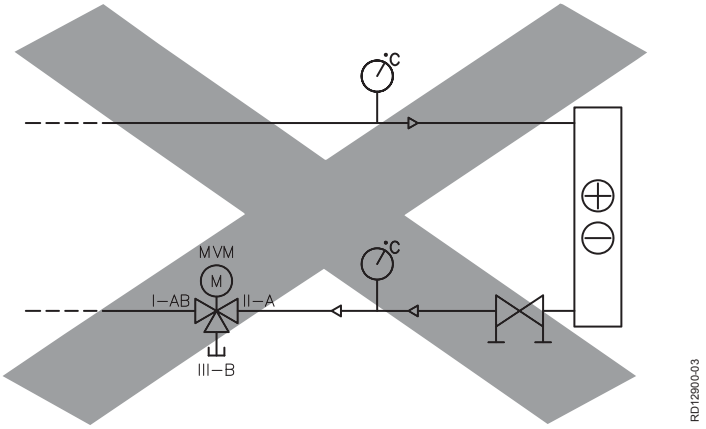
3.3 Integrated water heating coil

3.3.1 Principles for connecting the water heating coil

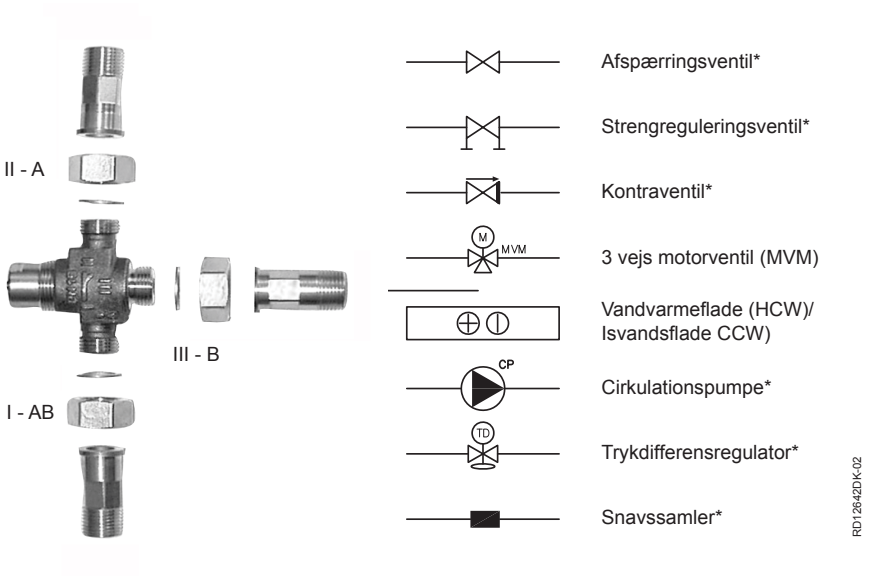
Mixing loop

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

Type	Method	Simplified diagram
Mixing loop 1	Variable flow in the primary circuit (supply) and constant flow in secondary circuit (VEX unit)	
Mixing loop 2	Constant flow in the primary circuit (supply) and the secondary circuit (VEX unit) a) When there is no heating requirement, valve adjustment must be based on the required primary circuit water flow	

Type	Method	Simplified diagram
⚠	Do not connect the heating coil like this! Connection without circulation pump risks frost damage!	

Explanation of simplified diagram



NB

The heating coil pipes must not be in the way when opening the nearest door on the VEX for extraction of the fan section. Use a 90° bend on the heating coil connection spigots.

*) not EXHAUSTO delivery (refer to the technical specifications).

3.3.2 Bleeding of coils

Bleeding

It is the responsibility of the contractor/customer to ensure that the bleeding option is correctly installed and that the building owner is informed of the risk of insufficient bleeding, regardless of whether the coil(s) in question are built into a ventilation system or mounted separately in the duct system.
The following must be observed when bleeding liquid-coupled coils/heating and cooling batteries:

- The heating/cooling system must be arranged in accordance with DS469 so that they can be bled.
- Ventilation systems installed above suspended ceilings or outside on roofs are often the top point of the pipe system and therefore air is often collected in the system here.
- Bleeding points must be easily accessible.
- Bleeding points must be selected so that all air in the system can be bled.
- Air pots and automatic air vents should be considered so that air is collected before it enters the coils, despite the fact that many coils are equipped with a bleeding option.
- A lack of bleeding can lead to a lack of water flow and, ultimately, frost damage to the coils and subsequent water damage to the building.

Following connection of water supply to the unit:

- Bleed the system thoroughly using the upper bleed screw on the water coil.

Air screw	

Insufficient bleeding

⚠ **Insufficient bleeding can result in still water forming in the system, which may result in frost-induced leaks during the winter.**

Fitting motor valve

⚠ **The valve must not be fitted with the motor facing down**

Insulate the water pipes

⚠ **The pipes to and from the heating coil must be insulated according to applicable regulations**

3.3.3 MVM valve

Definition

MVM is used as a general term for an engine valve.

Screening

Screen the valve motor from direct sunlight. Due to heat emissions, the valve motor must not be encapsulated (max. ambient temperature: 50°C).

Insulating the valve

To ensure normal operation at ambient temperatures below 0°C, it is very important that the valve section is insulated according to current standards/procedures.

MVM-OD, valve for outdoor fitting

If MVM-OD (MVM intended for outdoor fitting) is used, the screening and insulation are part of the delivery. MVM-OD is only possible for valve sizes below 6.3 K_{VS}.

Regulating properties

Optimal regulation is achieved when the differential pressure is between 5–20 kPa. See section "Technical specifications" to calculate K_{VS}.

Heat supply

The heat supply **must** be constant.

Exercise cycle of circulation pump

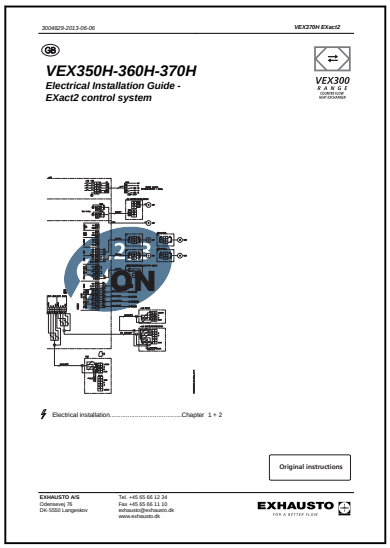
The circulation pump is exercised with the EXact2 control, as described here:

1. When no heating is required, the MVM valve operates at 0%.
2. The circulation pump then runs for a further 5 min and then stops.
3. EXact control starts the 24 hour timer.
4. When the 24 hours have passed, the circulation pump performs an exercise cycle for 5 min.
5. The exercise cycle is repeated once a day until there is no heating requirement.

4. Electrical installation

4.1 Electrical installation

See the attached instructions “Electrical Installation Guide of VEX350H-VEX360H-370H with EXact2 control system”.



3004829-2013-06-06 VEX370H EXact2

GB

VEX350H-360H-370H

Electrical Installation Guide - EXact2 control system

VEX300 RANGE

Electrical installation.....Chapter 1 + 2

Original instructions

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EXHAUSTO
FOR A BETTER FLOW

5. Maintenance

5.1 Operating readings via the HMI panel

HMI panel

Refer to the "EXact Basic Instructions for the VEX320-330-340-350-360-370" for instructions on accessing Menu 2 "Operating readings" via the technician menu (access code 1111) to check the unit's operating status.

5.2 Maintenance Schedule

Recommended intervals

The following chart details the recommended maintenance intervals, under normal operating conditions. EXHAUSTO recommends maintenance is adjusted to suit the actual operating requirements.

Component	Procedure	Once a year	Twice a year
Compact/bag filters*	**Change when the display shows the filter alarm.**. Recommended that both filters are replaced at the same time. **NB:** The control system can issue a warning when the filter is becoming soiled.		
	The filter should be changed at least		X
Filter monitor	Check that all the seals in the filter monitor are tight.	X	
Seals and sealing strips	Check that all the seals are tight.	X	
Fans	• Check that the fan impeller is securely fixed to the shaft. Removal of fan unit. See section "Internal transport with reduced weight" • Cleaning. See section "Servicing and cleaning"	X	
Heating coil/cold water coil (accessory)	Cleaning. See section "Servicing and cleaning"	X	
Counterflow heat exchanger	Cleaning. See section "Servicing and cleaning"	X	
Checking the safety functions	Check: • Fire thermostats • Temperature sensors on heating pipe (accessories)	X	
Closing damper	Function check	X	
Motor valve and circulation pump (accessories)	Function check	X	

As and when required

Following parts are cleaned as and when required

Component	As and when required
Condensation tray	Cleaning and inspection of outlet and water trap
Counterflow heat exchanger	Cleaning. See next sections.

***Filters**

Only use original filters

- The provided filter data and pressure loss graphs (section "Technical data") are based on the use of original filters
- EUROVENT certification is only valid if original filters are used
- Use of non-original filters may cause leakage in the VEX and impair filter function
- EXHAUSTO recommends that you register the filter replacement date to ensure filters are replaced at the correct intervals

5.3 Hygiene

VDI6022 air hygiene standard

To ensure that the VEX300 meets the requirements of the VDI 6022 hygiene standard, its design ensures that:

- bacterial growth and dirt accumulation are minimal
- conditions for cleaning are optimum

Filter F7

The outdoor air side of the unit must be fitted with a F7 filter to meet VDI 6022 requirements.

5.4 Service

5.4.1 Filter change

⚠ **Disconnect power at the isolation switch before opening the door.**

Pull the filters out. Remember to check the flow direction - see the arrows on the filter.
Discarded filters must be stored immediately in sealed plastic bags and disposed of responsibly.

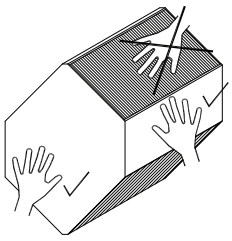
Filter change in menu 8.1

After filter change (timer operation only): Go to menu 8.1 in the EXact control system and select "Yes" next to filter change to reset the operating days counter.

5.4.2 Removing the counter flow heat exchangers

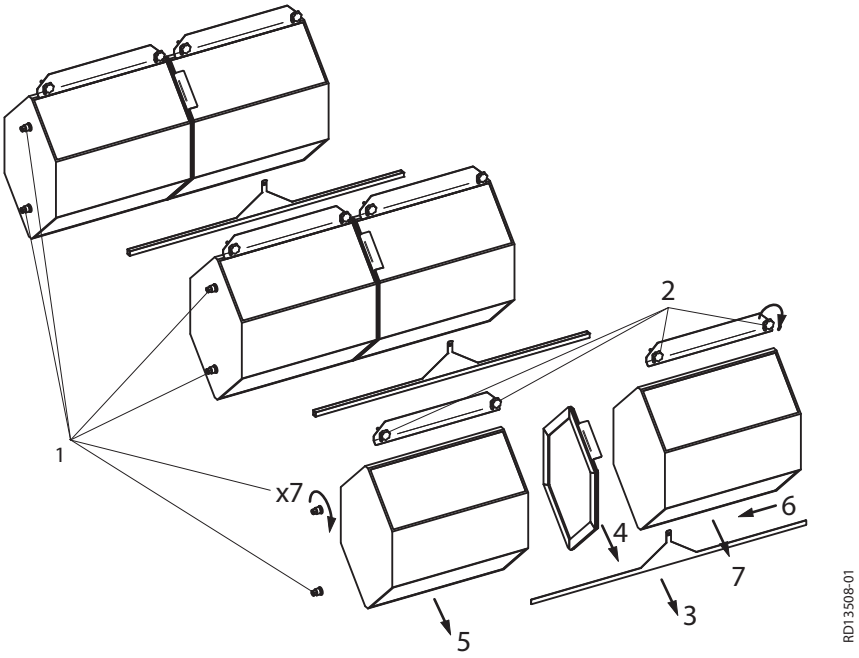
⚠ **Disconnect power at the isolation switch before opening the door.**

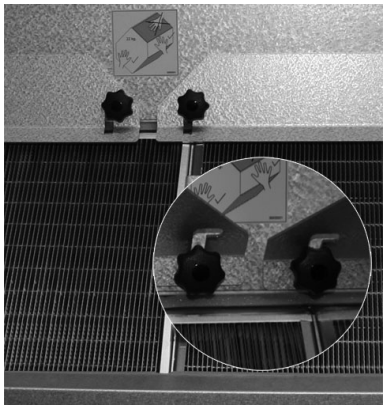
⚠ **The counterflow heat exchanger fins can be easily damaged - avoid contact with the fins.**

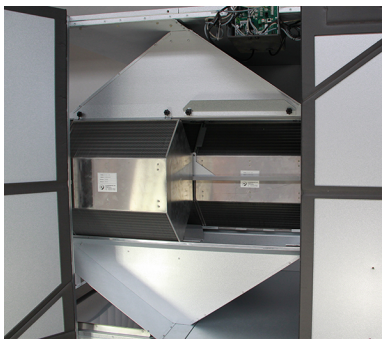


Summary of parts in the heat exchanger section

There is a difference in the sequence for removing counterflow heat exchangers, depending on whether the VEX is a left or right-hand unit. One a left-hand unit the heat exchanger to the left is removed first, while on a right-hand unit the right-hand heat exchanger is removed first.



Step		Action
1		Start by opening the door to the fan section (right-hand section for a left-hand unit) and release the 6 tensioners: turn the tensioner 7 times clockwise.
2		Loosen the finger screws on the bracket. Push the bracket to one side and remove it.

Step		Action
3		Remove the sealing profile in front of the heat exchangers (unhooks).
4		Remove the sealing panel between the heat exchangers (pull the handle).
5		Remove the first heat exchanger. **NB: A single heat exchanger weighs 19 kg.**
6+7		Push the other heat exchanger to the side and remove it also.

Step		Action
8		Use the first of the two panels on the inside of the door in the heat exchanger section as an underlay for the next row of heat exchangers. Lay the panel at the side from which the heat exchanger is to be removed. Remove the heat exchangers in the same way as described above.
9	 	Use the final panel as an underlay for the rear row of heat exchangers. These are also removed as described above.

Scan the QR code and see the video about removal

5.4.3 Servicing and cleaning

Cleaning the counter flow heat exchanger:

- Clean the exchanger by flushing with hot water
- Water temperature max. 90ºC.

How to clean the fan

See section "Internal transport with reduced weight" for details on how to remove the fan units.

Step	Action
1	Switch off the power supply to the unit at the isolation switch
2	Clean the fan impellers with a vacuum cleaner and by wiping with a damp cloth **NB: Clean the impellers carefully to avoid disturbing the balance**
3	Once re-fitted, check the unit operates without vibrating

Cleaning cold water coil/heating coil

Step	Action
1	Switch off the power supply to the unit at the isolation switch
2	Vacuum clean the heating coil
3	Cold water coil: clean the condensation tray

Scan the QR code and see the video about removal

6. Technical data

6.1 Weight, corrosion class, temperature ranges, etc.

Weight

Weight	1,018 kg

Corrosion class

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

Temperature ranges

Outdoor air temperature	-40ºC to +35℃
Ambient temperature	-30ºC to +50ºC

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

HMI panel

Enclosure class	IP20
Ambient temperature	0°C to +50°C

At temperatures below 0˚C, the display may react more slowly than usual.

Fire thermostat

Cut-out temperature BT40/50/70 (adjustable)	40-50-70°C
Max. ambient temperature, sensor	250 °C
Ambient temperature, thermostat housing	0°C - +80°C
Sensor length	125 mm
Enclosure class	IP40

Motor damper

Motor damper type	**LS600x120024**	**LSR600x120024**
Designation	LSA/LSF	LSFR
Motor type	NM24-F	AF-24
Rotation time	75–150 s	open: 150 s close: 16 s
Ingress protection	IP42	IP42
Ambient temperature	-20ºC to +50ºC	-30ºC to +50ºC
Damper depth (LS rail system) Damper depth (METU rail system)	115 mm 170 mm	115 mm 170 mm

A maximum of two LSFR dampers or four LSA/LSF dampers may be connected.

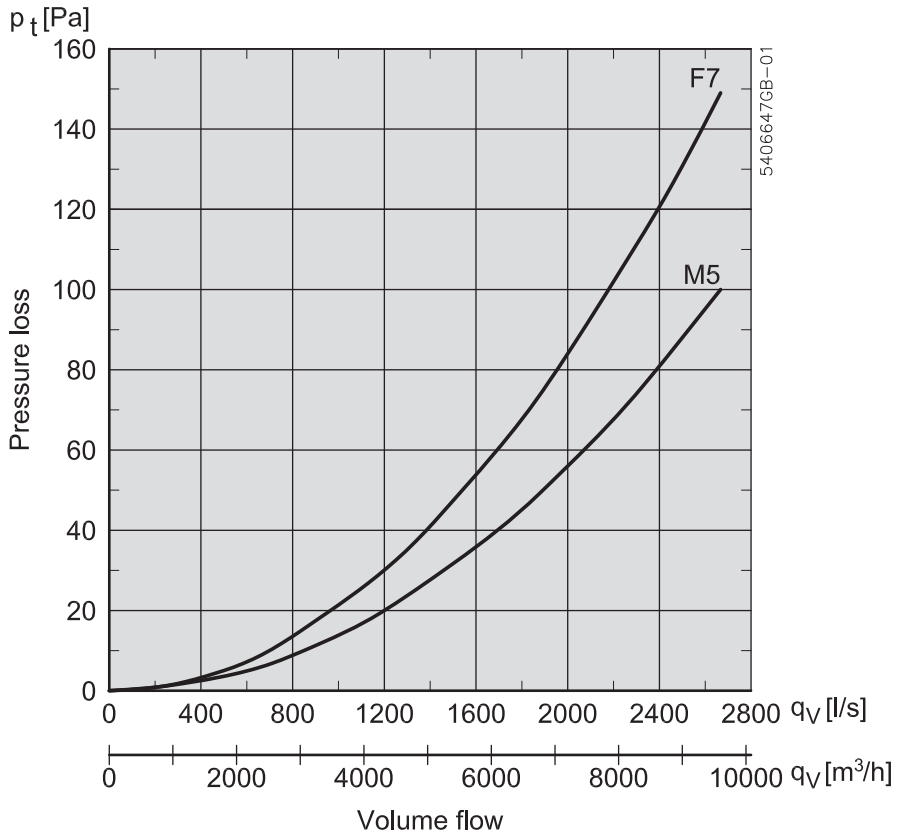
6.2 Compact filters

Filter data		
Filter class according to ISO 16890	**ePM_{10} 50%**	**ePM_1 55%**
Filter class according to EN 779	**M5**	**F7**
Filter panel h x b (qty. 3 per air direction)	414 x 750 mm	414 x 750 mm
Panel filter thickness	96	96
Efficiency	45%	85%
Recommended difference between final pressure drop and initial pressure drop	+100 Pa	+100 Pa

EUROVENT certification is only valid if original filters are used. For more details about original filters, see section "Maintenance".

6.3 Bag filters

Pressure loss curves for M5 and F7 filters



Filter data	M5	F7
Filter area h x b (qty. 2 per air direction)	2 x 592 x 592mm	2 x 592 x 592mm
Total number bags x depth	2 x 6 x 520mm	2 x 10 x 520mm
Volume flow rate	7500 m3/h	7500 m3/h
Initial pressure drop	57 Pa	85 Pa
Recommended difference between final pressure drop and initial pressure drop	+100 Pa	+100 Pa

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EUROVENT certification is only valid if original filters are used. For more details about original filters, see section "Maintenance".

6.4 Ingenerated water heating coil HCWi

Integrated water heating coil

		HCWi
Weight/content	Weight without fluid	35 kg
	Water content	11.8 l
Dimensions	Face area (h x b)	700 x 1,175 mm
Data	Test pressure	3000 kPa

		HCWi
	Max. operating pressure	1000 kPa
	Number of pipe rows	qty. 3
	Number of circuits	qty. 15
	Pipe connection	DN32 (1¼")
	Fin spacing	2.3 mm
	Permissible media temperature	5..0.95°C

Recommendation

A precise calculation of the heating coil is recommended, to be carried out with calculation program EXselect, available on www.exhausto.dk.

6.4.1 MVM motor valve

Valve	K_{VS} 1.0 - 4.0	K_{VS} 6.3
Test pressure	1600 kPa	1600 kPa
Max. differential pressure	100 kPa	200 kPa
Permissible media temperature	5°C - 110°C	5°C - 110°C
The valve will remain permanently open if the differential pressure	is greater than 100 kPa	is greater than 200 kPa

Motor	K_{VS} 1.0 - 4.0	K_{VS} 6.3
Permissible ambient temperature	-30°C - +50°C	-30°C - +50°C
Ingress protection, in accordance with IEC	IP40	IP40
Time taken to open/close	34 s	30 s
Power supply (50/60 Hz, AC/DC)	24VAC ±20% 24 VDC ±20%	24VAC ±20% 24 VDC ±20%
Regulation	0–10 VDC	0–10 VDC

6.5 Capacity diagram via EXselectPro

Recommendation

You are recommended to make a more precise calculation of the unit's capacity with the EXselect calculation program, EXSELECTPRO available on the EXHAUSTO website.

6.6 Ordering spare parts

Find production number

When ordering spares, please state the relevant production part number. This will ensure that the correct parts are delivered. The production number is given on the front of the VEX guidelines and on the VEX rating plate.

Contact:

Contact your local EXHAUSTO office service department to order a spare part. Contact information is given on the back cover of these instructions. See also the "Layout" section for an overview of the position and designation of parts in the VEX.

Scan code and go to addresses at
www.exhausto.com

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