Electrostatic Particle Filter

ESP-10

UK | Read and save these instructions!

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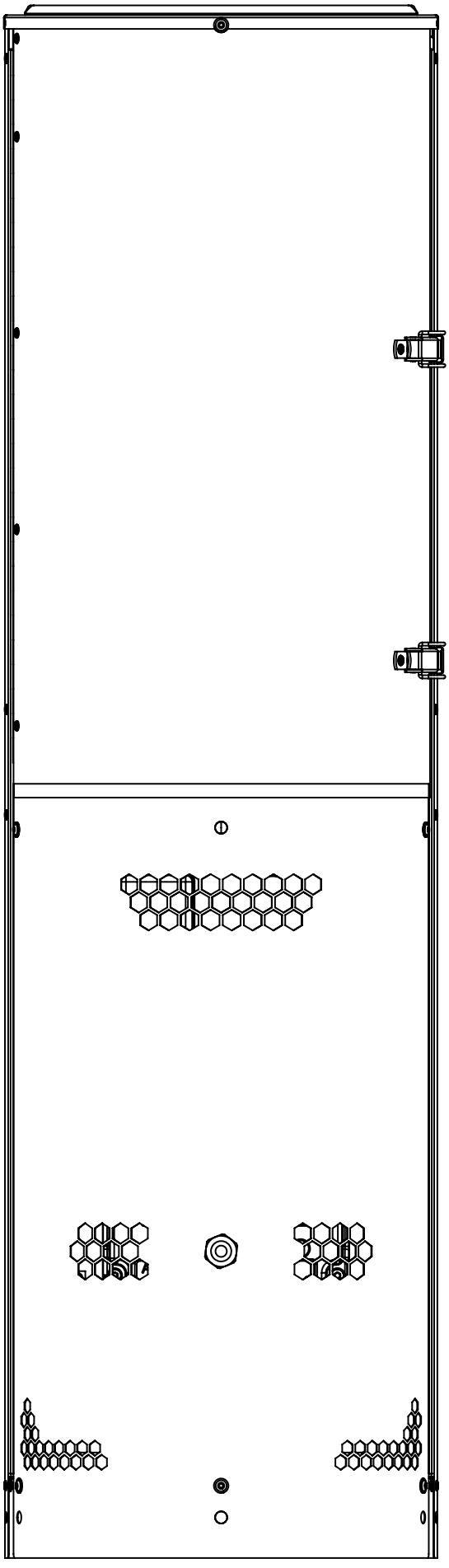

Particle Filter | ESP-10

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How to use this manual

This manual has been prepared based on the specific product and contains relevant technical information and installation guides.

Accessories and spare parts are not covered by this manual. Please refer to the individual manuals of these components.

This installation manual does not contain any system design documentation.

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

Errors and omissions excepted.

Disposal

Electrical and electronic equipment (EEE) often contain materials, components and substances that may harm the environment or be hazardous to your health. Products (WEEE) marked with the 'crossed-out wheeled bin' symbol should be disposed of separately from other waste at the end of its life. Though legislation may differ from country to country we strongly advise that electrical and electronic waste is separated from other waste and disposed of according to national legislation to protect the environment and personnel that may come into contact with waste.

Symbols

The following symbols may be used in the manual to draw attention to danger or risk of personal injury or damage to the product.

General prohibition

Failure to observe instructions marked with the prohibited symbol may result in extreme danger or serious personal injury.

General attention

Marks a dangerous situation that, in the worst-case scenario, can cause serious personal injury or significant damage to the product.

General warning

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

Electricity hazard/High Voltage

Marks a situation in which caution is advised due to the risk of high voltage electric shock which can cause serious personal injury or significant damage to the product.

Connect an earth terminal to the ground

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

Permitted and approved

Permitted and approved method of installation.

Prohibited and not approved

Prohibited and not approved method of installation.

Warning

To minimise the risk of fire, electric shock, personal injury and/or damage to the product please observe the following:

- Please always read the manual and only use the product in accordance with the manufacturer's instructions. If in doubt, contact one of the Exodraft specialized dealers.
- All installations must be carried out by properly qualified personnel in accordance with national legislation and regulations.
- This product must be earthed. Get assistance from an qualified electrician when in doubt.
- The filter must always remain switched on when the fireplace is in use.
- Exodraft recommends that the filter is switched on at least once every three months, to avoid long periods of stagnation for the mechanical parts.
- Ensure that the chimney has been swept before mounting the filter to avoid chimney fire.
- The product must be accessible for service and maintenance.
- Prior to servicing the product, disconnect the power supply to the filter. Turn off the main switch located on the filter. Ensure that the heat source and the filter cannot be turned on accidentally. Let the filter cool down before service or cleaning.
- Automatic power on/off function; when the temperature in the chimney increases, high voltage automatically switches on. Touching the electrode or the electrode holder may be fatal.
- Exodraft always recommends the use of a smoke alarm when a solid fuel fireplace is installed.
- If the Exodraft fan system has been designed for solid fuel/multi fuel installations, please ensure that the design meets the requirements of BS EN15287-1. If this cannot be achieved, a smoke alarm must be installed in the same room as the heat appliance.
- Undesirable stoking practice may result in problems, such as excessive soot accumulation, chimney fires, etc., which may damage the product.

Product description

An Exodraft ESP-10 particle filter is designed as an electrostatic precipitator with a built-in fan for mounting on top of the chimney. The filter is equipped with a self-cleaning function (patented) and designed to reduce the emissions from wood-burning appliances as well as facilitate easier lighting and refueling.

The ESP-10 comes with a 5-metre cable with an open wire installation. Exodraft recommend that a 2 pole isolation switch, is to be fitted to the cable, so that the current can be interrupted during inspection and service - REPAFB (2 pole isolation switch) can be purchased additionally through Exodraft.

All installations must be carried out by properly qualified personnel and in accordance with national legislation and regulations.

The filter is designed for closed wood-burning fireplaces (stoves) with a nominal heat output of maximum 10 kW.

Incorrect firing may result in problems with soot, chimney fires, etc. which might damage the product. Please check out this site for advice about lighting and maintaining a fire:

www.exodraft.com

Scope of supply

- ESP-10 with 5-metre connection cable (with open wires)
- Installation manual and user instructions
- Labels for chimney sweep, indicating that power to the filter must be cut off before cleaning the chimney to be placed at fireplace and cleaning locations.

A mounting adapter for mounting the Exodraft ESP-10 on the chimney must be ordered separately to fit the existing chimney system.

Accessories and spare parts

The table below shows the accessories and spare parts available for the ESP-10-models.

Accessories*	**Spare parts**
Adapters (for steel and brick chimneys)	Fan motor
Flanges (for brick chimneys)	Cleaning motor
REPAFB (2 pole isolation switch)	Electrode
Rainshield (steel or black)	Insulator
	EPC Controller
	EPC Multiplier modul

*This manual does not describe the specific use of accessories. We refer to the separate manuals for such components.
For more details contact your Exodraft dealer.

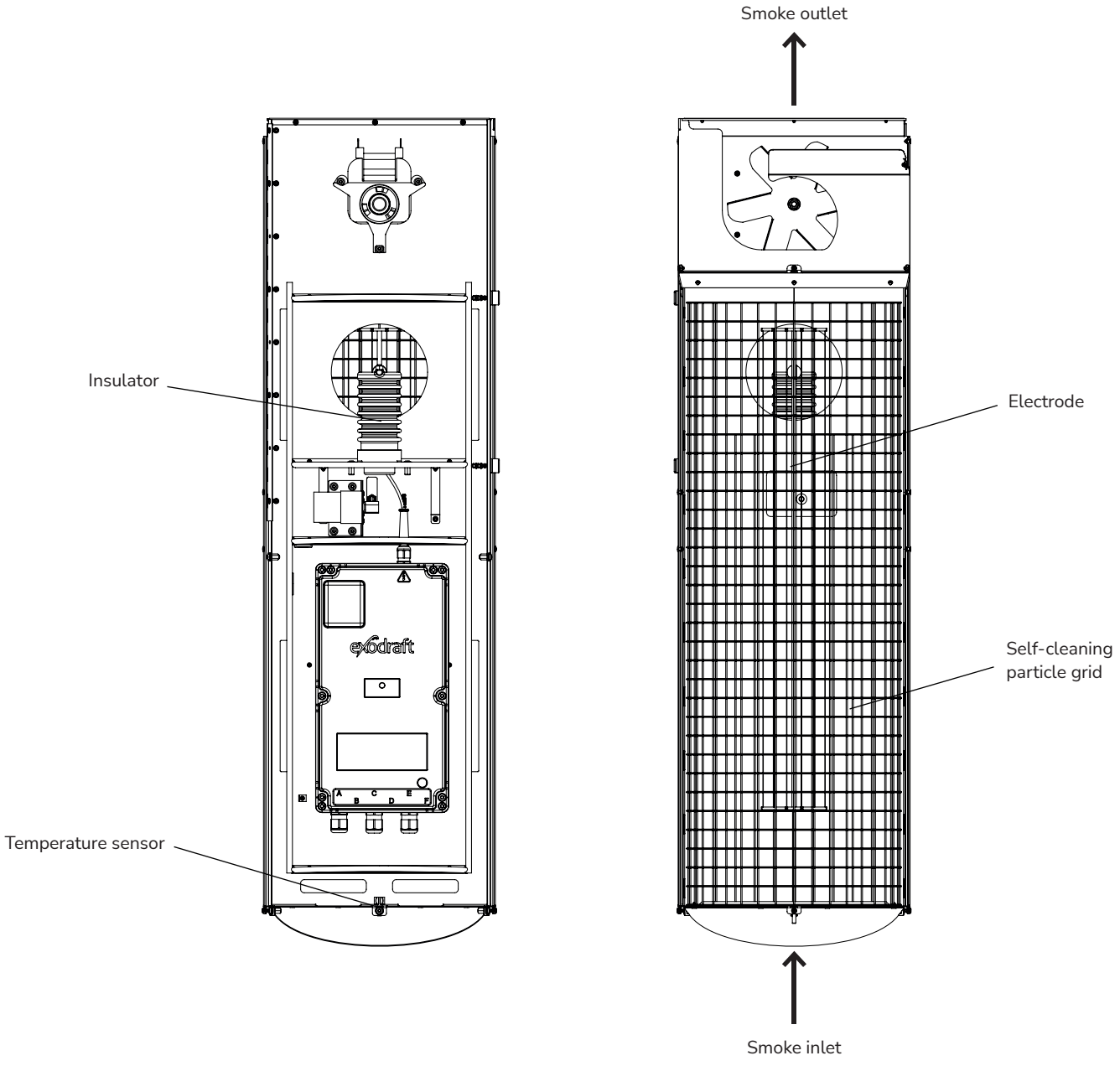
Functionality of the electrostatic precipitator

The Exodraft filter is an electrostatic precipitator. The filter reduces the number of fine and ultrafine particles in a flue gas flow by creating an electrostatic field between the charging electrode and the collection electrode.

The electrostatic field in the ESP-10 is generated by a charging electrode connected to a high voltage generator which ionizes the gas in its surroundings and as a result charges the particles and delivers an electrostatic field strong enough to push the charged particles towards a collection electrode.

While the electrostatic field is on, the precipitated particles will remain attached to the collection electrode. When the temperature and oxygen inside the filter is on a certain level, most of the attached particles will self-ignite and burn off in a complete combustion as a part of the normal operation.

The filter's self-cleaning functionality will remove the remaining particles inside the filter.



Automatic on/off

The Exodraft ESP-10 filter has a built-in temperature sensor that makes it possible to control the start and stop function automatically.

After the fireplace is lit, the ESP-10 filter will activate as soon as the temperature sensor records an increase in temperature. Depending on the chimney application, the start delay will be 10-30 seconds.

When no fuel is added to the wood stove, the chimney temperature will start to decrease. Once the temperature drops below 40 °C, the ESP-10 filter continues to operate for 30 minutes, after which sleep mode is engaged.

ATTENTION! When the fireplace and chimney are cold, it may, depending on relevant factors (stove model, chimney size, fuel type etc.), be necessary to turn the Exodraft ESP-10 filter off and then back on at the power supply to get the full benefit of the ventilators mechanical draft.

Self-cleaning function

The Exodraft ESP-10 filter is equipped with an automatic cleaning function that periodically cleans the filter during operation. The user may be able to hear the filter cleaning in some situations as the self-cleaning procedure is a mechanical movement inside the filter.

If the filter is restarted and the fireplace is cold, the automatic cleaning process will run for 3-5 seconds.

When the fireplace is in use the cleaning procedure is initiated after 5 hours, only starting when the fireplace is being refueld.

Adaptive speed control of the fan

The ESP-10 is equipped with adaptive speed control of the chimney fan speed. This means that the draft now adapts to the installation and only supplies chimney draft when necessary.

In order for the adaptive speed control to function correctly when putting the ESP-10 into operation, a run-in firing must be carried out that is accurate for subsequent use. See the Start-up and configuration section.

The adaptive speed control bases the function on data collected from the last 5 firings. See the User operation instruction section.

Warranty

All Exodraft products are covered by a 2-year guarantee as per European consumer rights legislation. For some countries an extended period of guarantee may apply depending on either national legislation or other clearly stipulated conditions. Customer complaints must be handled by a specialised dealer or wholesaler (preferably where the Exodraft product has been bought originally). An updated list of Exodraft specialised dealers can be found on our website for the country in question.

Exodraft products must always be installed by properly qualified personnel. Exodraft reserves the right to change these guidelines without prior notice.

The warranty and liability does not cover instances regarding personal injury or damage to property or the product that can be ascribed to one or more of the following causes:

- Failure to follow this installation and operation manual
- Incorrect installation, start-up, maintenance or servicing
- Improper repairs
- Unauthorised structural modifications made to the product
- Installation of additional components that have not been tested/approved with the product
- Any damage resulting from continued use of the product despite an evident defect
- Failure to use original spareparts and accessories
- Failure to use the product as intended
- Exceeding or failure to meet the limit values in the technical data
- Force majeure

Technical specifications

The ESP-10 is designed for vertical discharge. It is available in to colors, black painted steel and bright steel. The body and indside material are manufactured in stainless steel, 1.4404 (316L) and casing/housing material are manufactured in stainless steel, 1.4301 (304).

All models can be opened for service and cleaning purposes.

The ESP-10 vane has been developed to solve draught problems by creating a mechanical draught on chimney, while the electrostatic precipitator filter reduces the number of fine and ultrafine particles in a flue gas flow.

The ESP-10 filter has been designed for closed wood-burning fireplaces and stoves with a nominal heat output of maximum 10 kW. The filter first reaches its full efficiency after 10-20 fires or burning of approx. 15-20 kg of firewood.

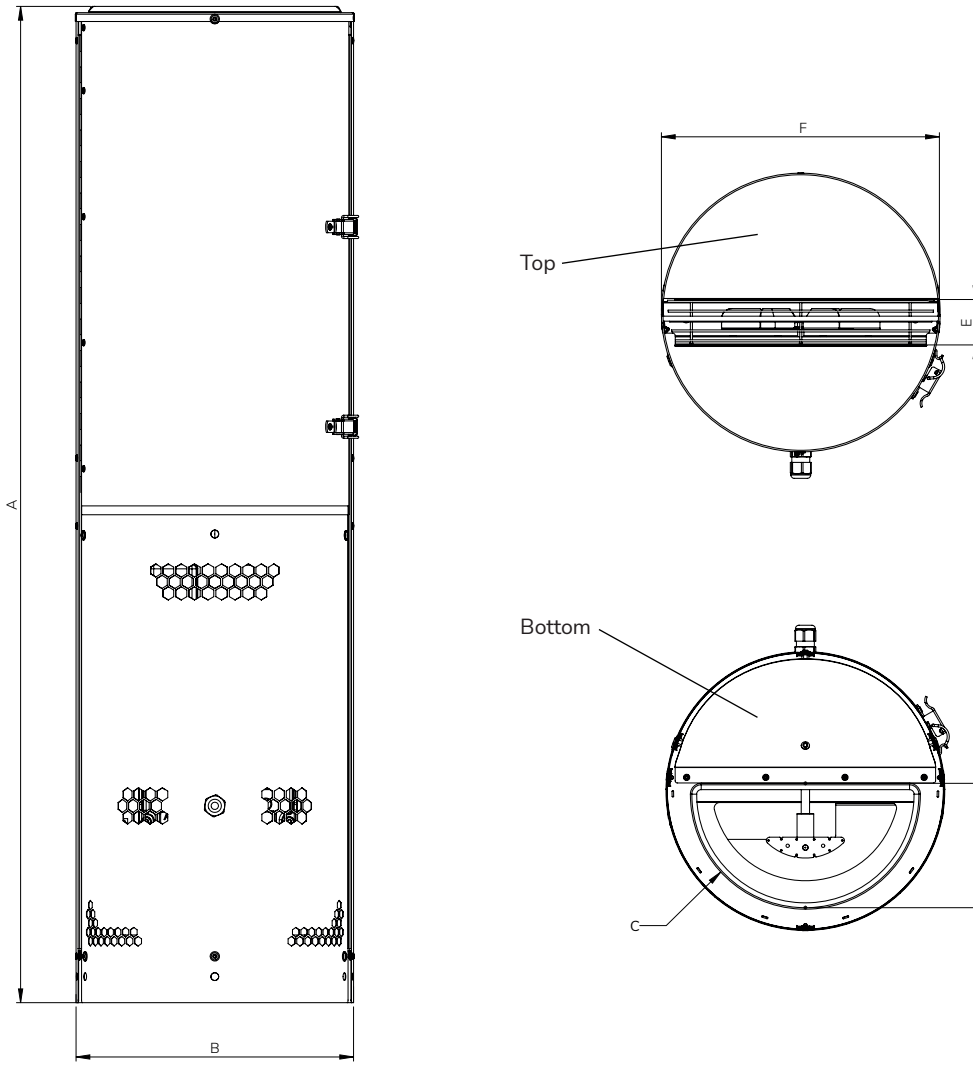
The ESP-10 filter can tolerate flue gas temperatures up to 400°C.

ESP-10 must **not** be mounted directly on the stove/fireplace. There must be at least 3 meters from the filter to the fireplace.

Technical data

Model	Motor specifications					
	V	Amp	Hz	Power consumption in use [W]	Power consumption standby [W]	High Voltage [kV/mA]*
ESP-10-STEEL	1 x 230	0.5	50	50-90	2	30 / 1.7
ESP-10-BLACK	1 x 230	0.5	50	50-90	2	30 / 1.7

*Power consumption at min. ambient temperature of -20 °C and max. ambient temperature of 45 °C.



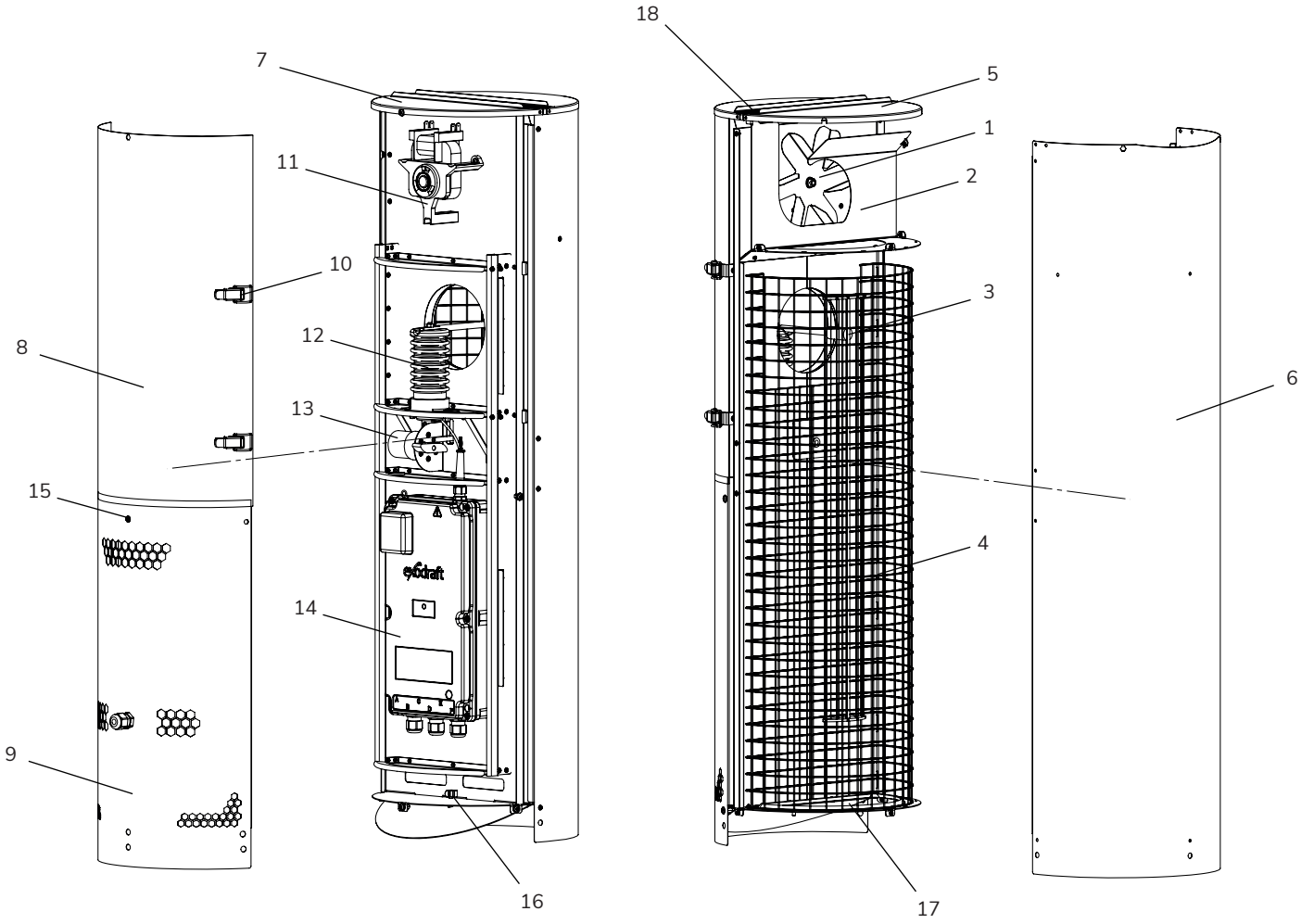
Model	Weight	Dimension [mm]						Testing done at
	kg	A	B [Ø]	C [Ø]	D	E	F	
ESP-10-STEEL	14	957	267	220	120	44	267	DIBt: Z-7.4-3536
ESP-10-BLACK	14	957	267	220	120	44	267	DIBt: Z-7.4-3536

ESP-10 Filter without adapter

Construction and components

1	Vane/Fan impeller
2	Fan inlet
3	Electrode
4	Self-cleaning particle grid
5	Lid (smoke gas side)
6	Cover (smoke gas side)
7	Lid (electronic side)
8	Cover for inspection or service (electronic side)
9	Cover with convection (electronic side)

10	Snap lock
11	Fan motor
12	Insulator
13	Automatic cleaning motor
14	Controller
15	LED diode
16	Temperature sensor
17	Inlet for smoke
18	Outlet for smoke



Precautions and user instructions

These instructions, applicable standards and relevant safety procedures from the manufacturer must be followed and at the same time the official provisions in force in the country, where the product is installed, must be observed.

Support system

Prior to installation of a ESP-10, it must be determined if the chimney can safely carry the weight of the particle filter.

A steel chimney should be well supported at the roof penetration point. If the chimney extends high above the roof, the chimney and the ESP-10 should be secured. The manufacturer's instructions must be followed.

Brick chimneys do not usually need any kind of support to carry the weight of the ESP-10.

System type

Fireplaces and wood stoves used in private dwellings normally operate in a relatively stable environment, where no major pressure fluctuations occur. However, to ensure an optimal firing, the particle filter is equipped with a vane, to create a constant draft in the chimney independently the weather outside and on the stage of the firing process.

Chimney type	**Specifications**				
	Fireplace performance range [kW]	Minimum size [mm]	Maximum size [mm]	Minimum distance for filter to flammable material [mm]	Minimum distance for filter to fireplace [m]
Steel (round)	2 – 10	Ø125	Ø250	500	3
Brick (square)	2 – 10	125 x 125	250 x 250	500	3

Precautions

Be aware

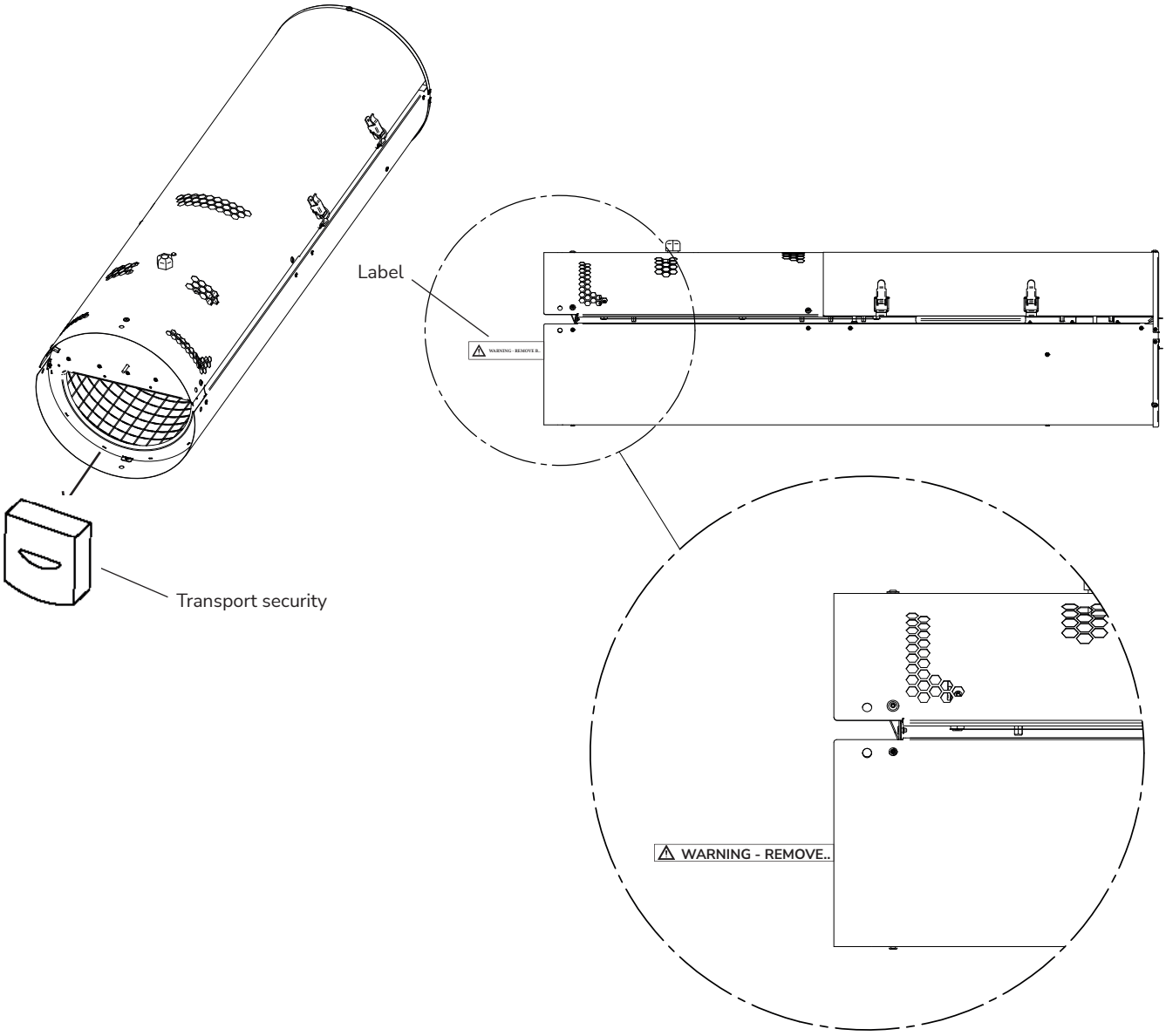
- that it must be installed on top of the chimney
- that it can be mounted on steel as well as brick chimneys
- that it must be mounted with the approved Exodraft accessories
- that the ESP-10 must always remain switched on when the fireplace is in use
- that it must be accessible for service and maintenance from the roof or from a ladder/cherry picker
- that the distance to flammable materials must be at least 500 mm
- that the isolation switch must be easily accessible

Mechanical installation

Exodraft products must always be installed by properly qualified personnel and according to the manufacturer's instructions.

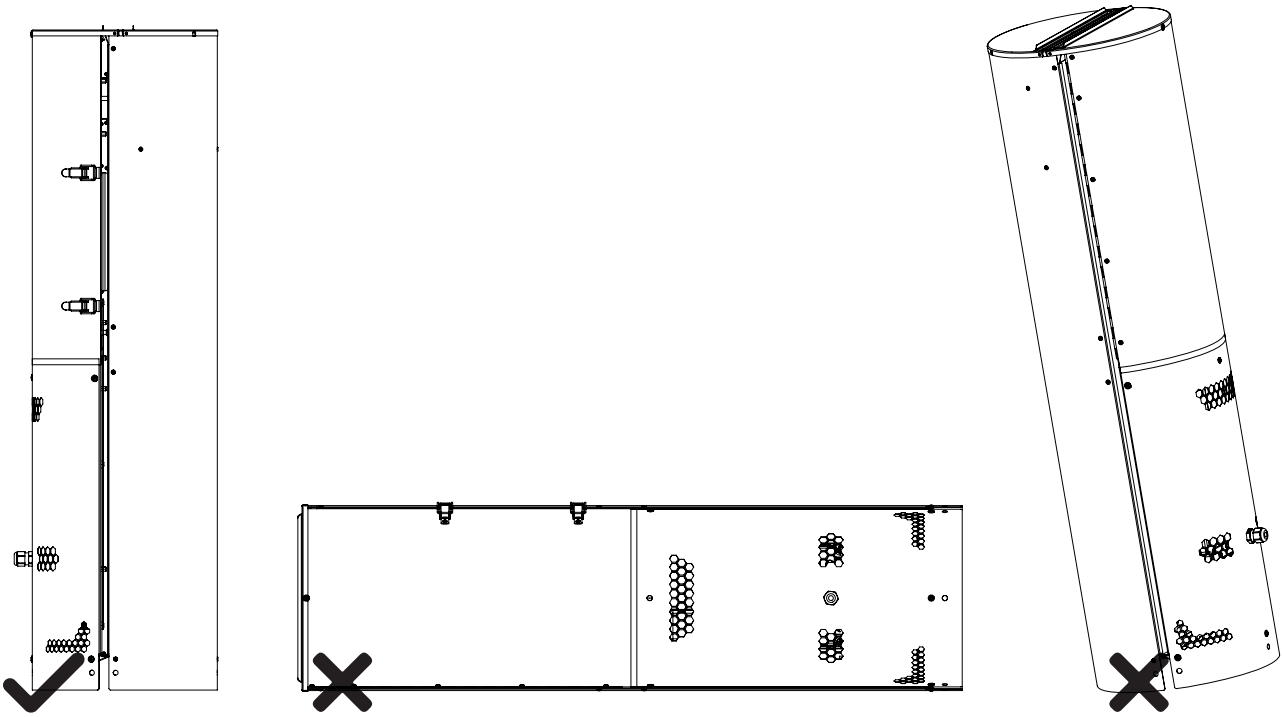
Transportation safety

Do not forget to remove the transport security in the bottom of the filter, protecting the electrode, before mounting the particle filter on the chimney.



Positioning of the particle filter

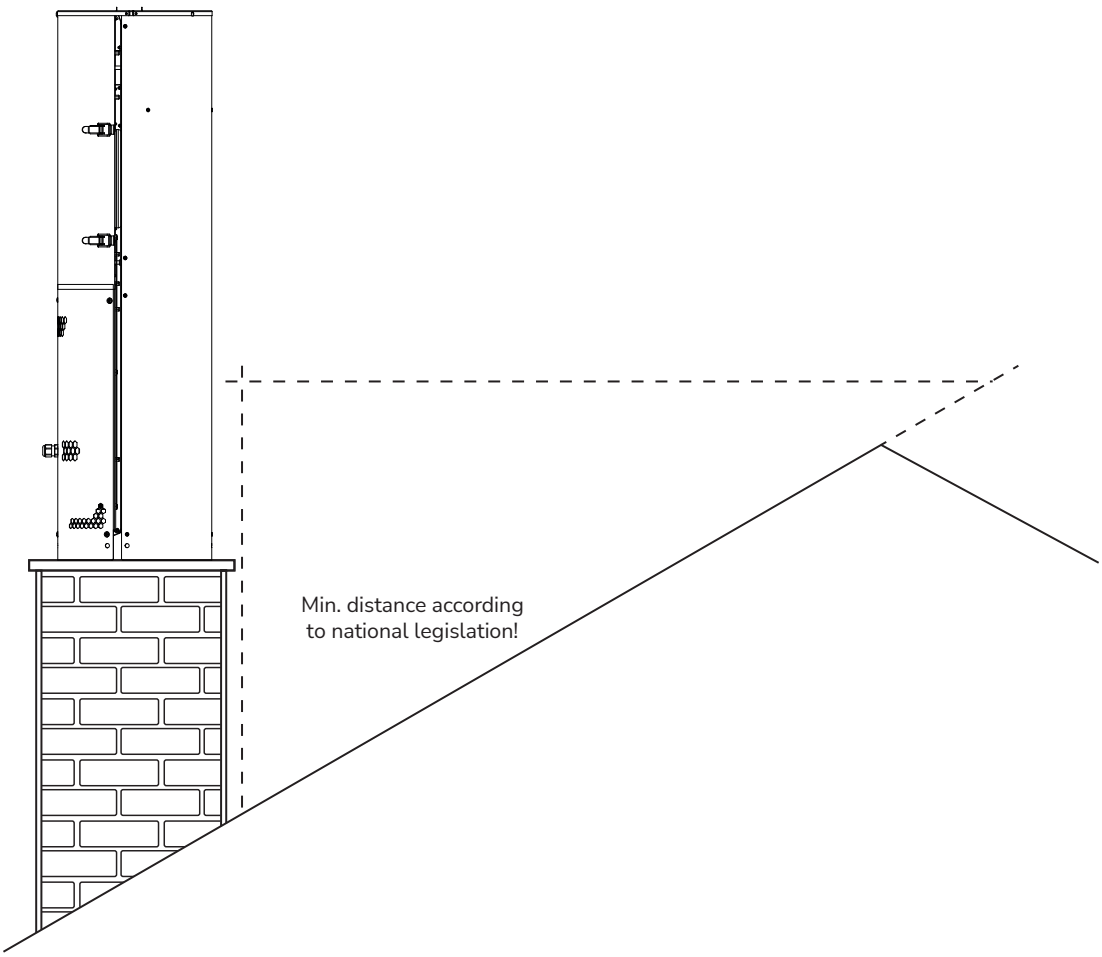
The particle filter can and must only be mounted vertically! Be aware of national law and building regulations!



Minimum distance

The minimum distance to flammable materials must be at least 500 mm (national legislation must be observed)!

ATTENTION! The minimum distance for the particle filter to the fireplace must be at least 3 metres.



Before installation onto a chimney

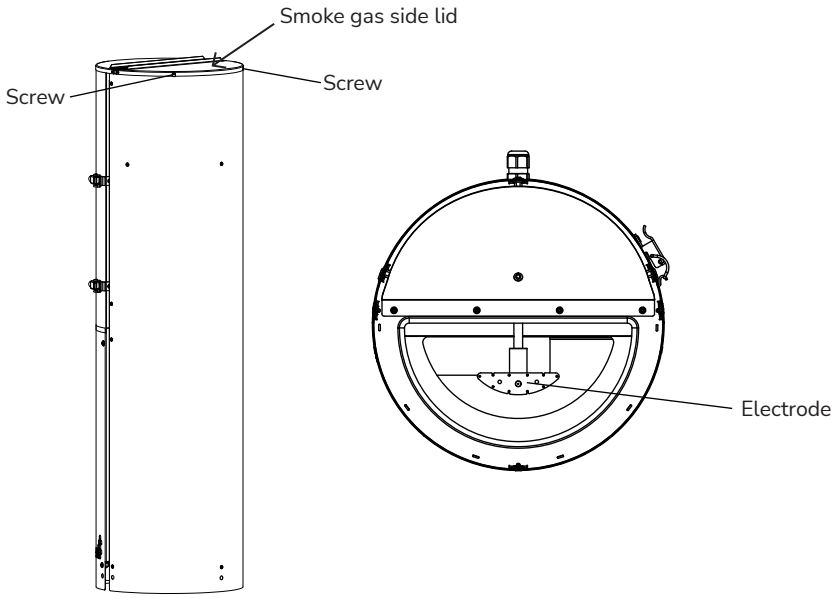
Before the installation for the ESP-10, it must be ensured that the electrode and the temperature sensor are in the correct position. If the electrode or temperature sensor is out of its correct position, the particle filter will not function correctly.

ATTENTION! The power supply must always be off, when the particle filters are being inspected or serviced. Exodraft recommend that a 2 pole isolation switch, is to be fitted to the cable, so that the current can be interrupted during inspection and service.

Aligning the electrode

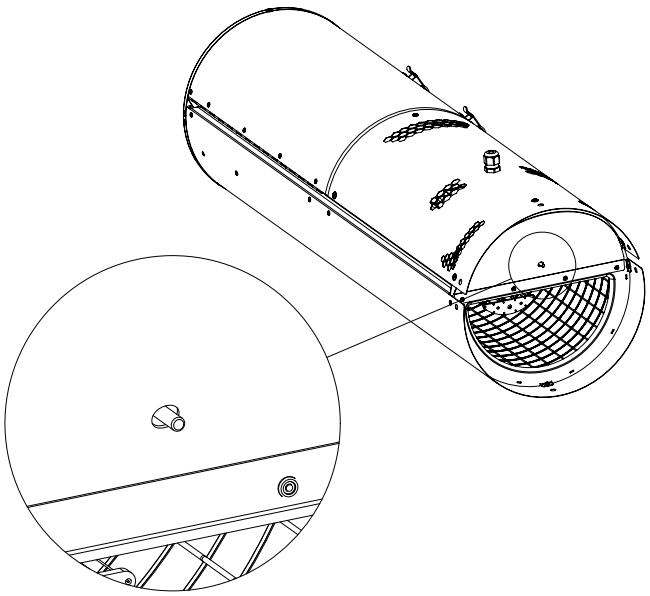
The ESP-10 comes with the charging electrode already installed. When installing the ESP-10, the charging electrode should hang straight down inside the smoke gas side.

The position of the electrode can be determined by removing the screw and open the lid on the top of the smoke side, look down into the filter and observe whether or not the electrode is hanging straight down inside the filter. Should the electrode not be aligned properly, please realign or replace the electrode.



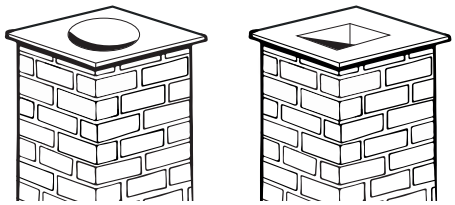
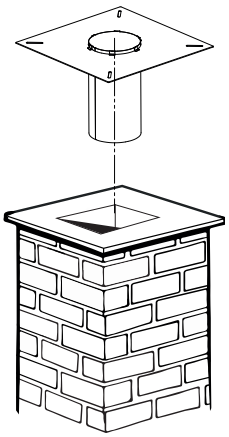
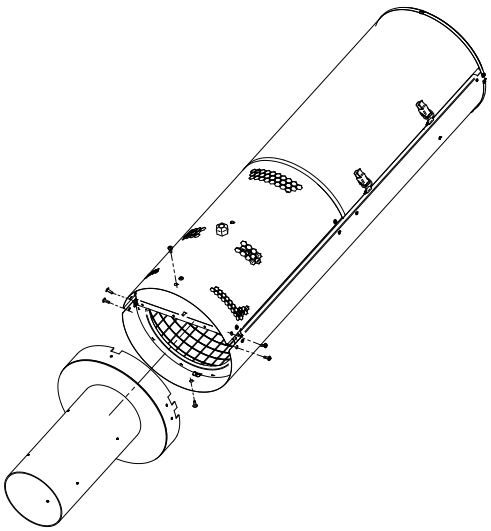
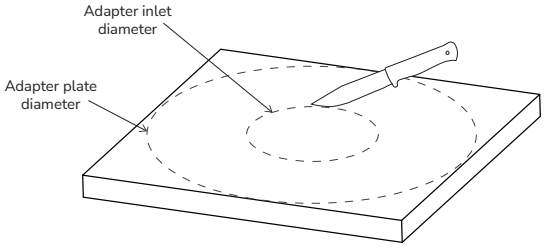
Temperature sensor position

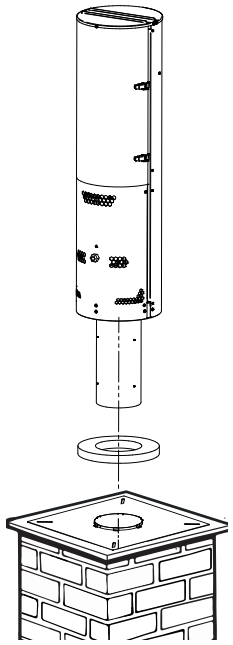
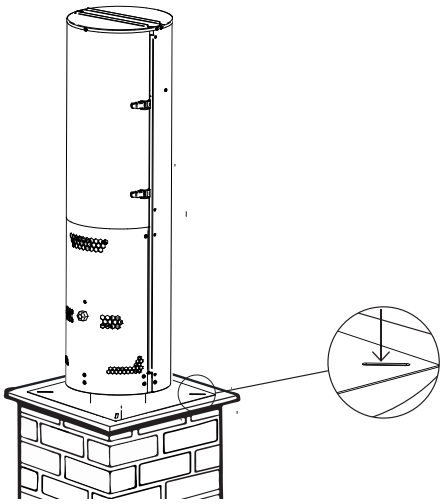
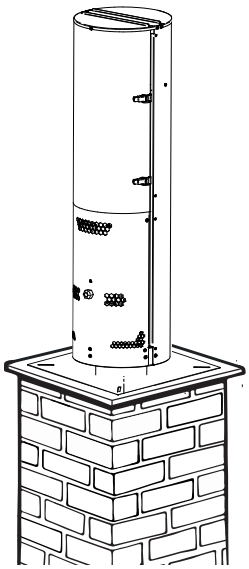
Before mounting the ESP-10 filter on the chimney, please make sure that the temperature sensor is in position. The temperature sensor is located at the bottom of the filter and should be sticking out from bottom plate, approximately 3 cm.



Installation onto a brick chimney

If the filter is to be fitted on a brick chimney, please use Exodraft accessories - the adapter and flange for ESP-10. See the installation guide below.

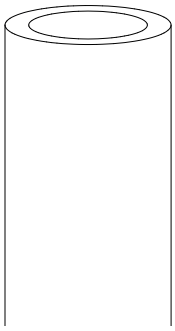
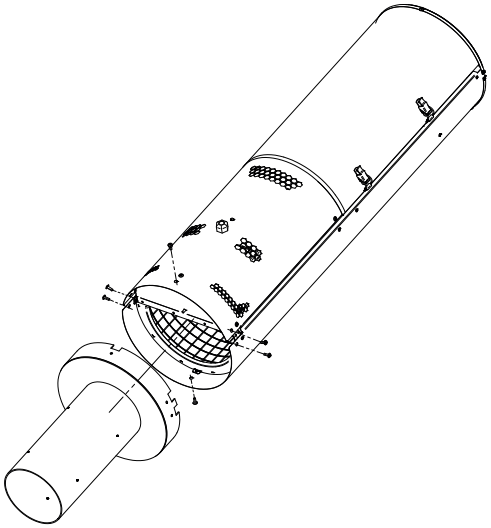
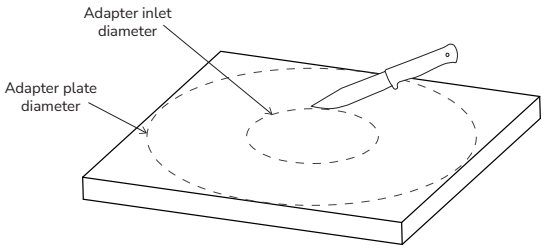
Step	Action	Illustration
1	Measure the inside diameter of the brick chimney, to choose the correct adapter and flange.	
2	Install the flange on the brick chimney, and fixate the flange to the chimney with some screws.	
3	Mount the adapter on the particle filter, with the supplied screws.	
4	Then cut a hole in the mineral wool mat that matches the adapter.	

5	Mount the particle filter with adapter, on the mineral wool mat, on the chimney.	
6	To avoid rainwater from entering the flange - the slots and around the flange must be sealed with silicone.	
7	Connect the ESP-10 power cable to the power outlet and turn on the power switch on the filter. See the chapter **Electrical installation** for more information.	

ATTENTION! The chimney sweep must be made aware that the chimney is equipped with an ESP-10 Filter!
The supplied high voltage warning label must be attached to all inspection/cleaning hatches in the chimney system.

Installation onto a steel chimney

If the filter is to be fitted on a steel chimney, please use Exodraft accessories - the adapter for ESP-10. See the installation guide below.

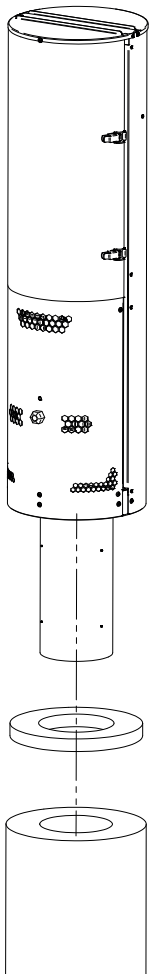
Step	Action	Illustration
1	Measure the inside diameter of the steel chimney, to choose the correct adapter for the particle filter.	
2	Mount the adapter on the particle filter, with the supplied screws.	
3	Then cut a hole in the mineral wool mat that matches the adapter.	

4

Mount the particle filter with adapter (and adapter-brackets*), on the mineral wool mat, on the chimney.

Note! The brackets may be necessary if the filters wobbles.
However, please note that the filter's adapter incl. fittings/brackets, must not sit in tension in the chimney pipe.

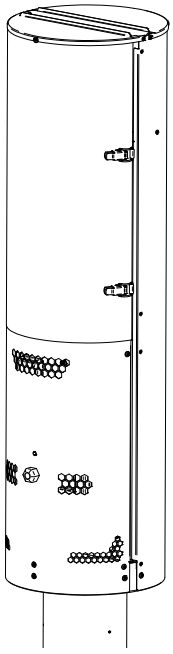
**See the guide for the mounting of the brackets.*



5

Connect the ESP-10 power cable to the power outlet and turn on the power switch on the filter.

See the chapter **Electrical installation** for more information.



ATTENTION! The chimney sweep must be made aware that the chimney is equipped with an ESP-10 Filter!
The supplied high voltage warning label must be attached to all inspection/cleaning hatches in the chimney system.

Electrical Installation

The electrical installation should only be carried out by competent personnel in compliance with applicable laws.

ATTENTION! Always disconnect the power supply before working on the device and make sure that it cannot be reconnected accidentally. Check always that the installed isolation switch is set to off.

General information

- The electrical installation must be carried out in compliance with applicable laws.
- This ESP-10 **must have (PE) ground connection**. Power supply needed: 230 V AC / 1.0 A

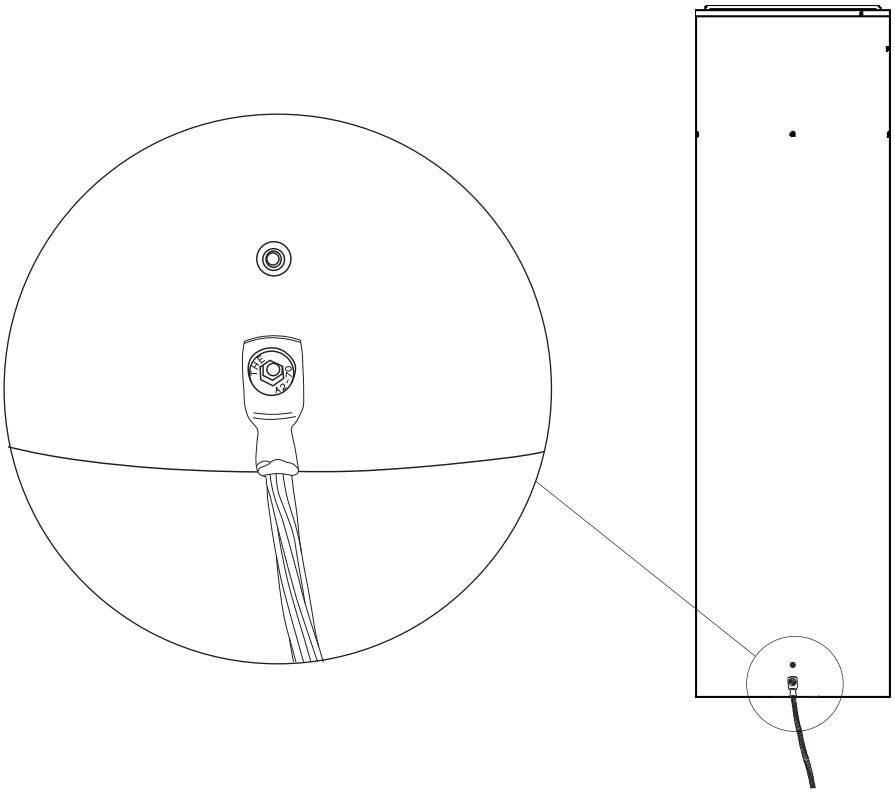
Power connection

The ESP-10 is delivered with open wires. A plug with (PE) ground connection needs to be installed on the filter. The plug must match the local requirements for electrical installations. Exodraft recommend that a 2 pole isolation switch, is to be fitted to the cable.

Lightning/arrester protection connection

For lightning protection system. Connection as shown on picture.

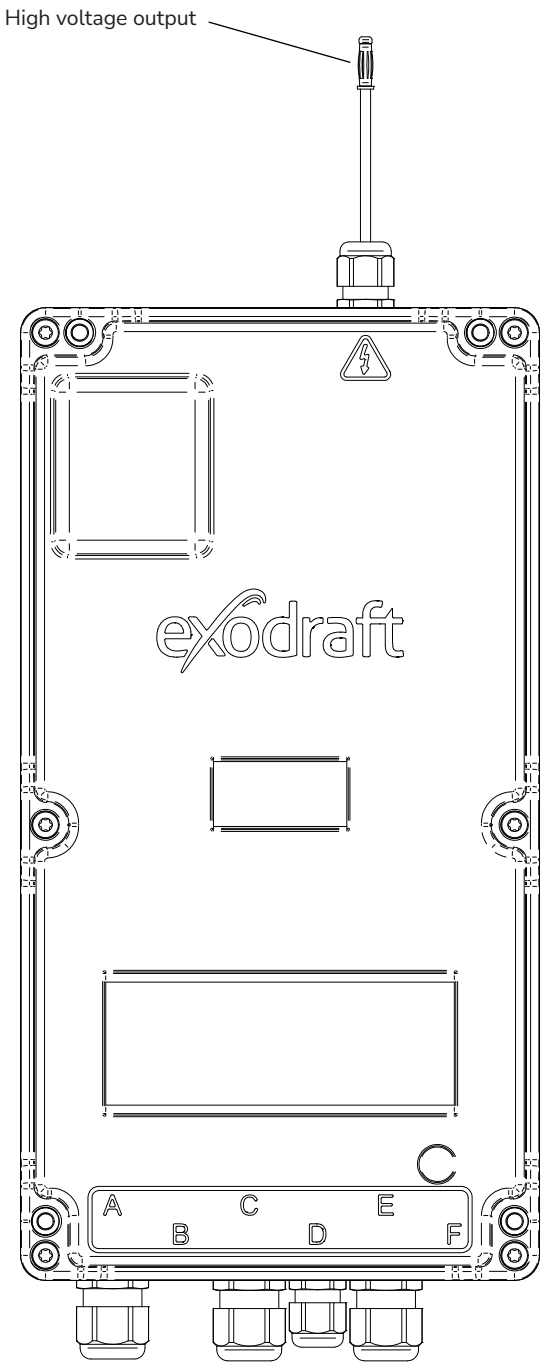
Use one of the 6 hexacon screws where the adapter is mounted for direct ground connection.



Controller

The illustration and table below shows an overview of the inputs and outputs of the controller.

	Controller input/output					
	A	B	C	D	E	F
	Supply 1 x 230 V	Not used	Booster fan (output) 1 x 230 V	LED diode & Temp. sensor	Cleaning motor (output) 12 V	Not used



Start-up and configuration

General

Plug in the power supply to the ESP-10 filter and turn on the installed isolation switch for the filter.
The filter will start up and is now ready for the wood stove to be lit.

Be aware! Whenever the power is switched on and the tempeture is higher then 40°C, the filter will be on for 1.5 hours (the impeller will run), even if the stove is not used. First hereafter then will the filter go to sleep-mode.

There is no further configuration, when the chimney are used. The filter will run automatically.

ATTENTION! Do not open the electrical control box. If opened, the warranty is void.

System test

When the filter is activated for the first time, the chimney must be cold. Check that the cleaning function starts and runs for 3-5 seconds. Make sure that the ESP-10 starts afterwards. Ensure that the LED on the ESP-10 filter is green.

When these points have been verified, the filter is ready for operation.

Adaptive chimney fan speed

In order to get the adaptive speed control of the chimney fan to function correctly, it is important to follow a correct but also realistic lighting procedure the first time the stove is fired up with the new ESP-10.

Data for the regulation is collected from the temperature sensor and it is therefore important that the first firing is accurate in order to get correct function. Follow the stove manufacturer’s instructions for correct firing.

User operation instructions

User operation

Always load the stove with dry and clean wood only and in accordance with the stove manual.

ATTENTION! Never use the stove with the filter turned off or the power cable not plugged in! This will result in permanent damage to the filter.

For operation, the filter must be connected to a 230V power outlet with a PE connection and turned on by activating the outlet switch as well as the main switch on the filter itself.

When the filter is turned on, it will start the automatic cleaning process which lasts for 5 seconds.

If the chimney temperature near the filter does not exceed 40 °C for a period of 1 hour, the filter will engage sleep/standby mode to reduce power consumption. The filter will remain in sleep mode until the fireplace is lit and the temperature and the flue gas temperature rises.

Attention! The automatic cleaning procedure may be heard as a mechanical noise in some situations. When the automatic cleaning process has finished, it takes approximately 3-5 seconds for the filter and ESP-10 to be back up and running.

Note! Please note that even if the electrostatic precipitator malfunctions, the ESP-10 will still run.
In case of a power failure (no power to the filter), air and smoke still have free passage through the filter, meaning the stove is safe to use.

CAUTION! Do not overheat the stove.

Small deposits of soot can kindle and start a chimney fire, which may cause dangerously high temperatures in the chimney. If you have experienced a chimney fire, you must ensure that the mechanical and electrical functions of the ESP-10 are inspected. If defects or irregularities are found, these must be repaired before further use of the ESP-10 or the stove.

Adaptive chimney fan speed

The adaptive function to regulate the chimney fan speed uses data collected from the last 5 firings.

If firing is uniform, the chimney fan will only add draft when necessary for proper combustion, i.e. when the system is thoroughly heated and there is a good fire in the stove, the chimney fan will not necessarily run.

If there are changes in the installation, draft conditions, other firewood, etc. that affect combustion, the chimney fan speed will be adjusted accordingly.

Indications on the ESP-10 filter

The LED on the filter will indicate current filter status.

The following diagram illustrates the various status categories, as indicated by the LED.

	LED	
No light - OFF		OFF
Green - ON		In operation
Flashing Green once per second		Sleep mode/Standby mode
Flashing Green 5 times per second		Automatic cleaning in progress
Red - ON		General failure
Flashing Green 5 times per second Solid red for 5 seconds Green for in operation		Automatic cleaning fail
Flashing Red once per second		No PE connection
Flashing Red/Green once per second		Current limiter/sparkover safety system activated
Flashing Red/Green 5 times per second		Current limiter/short circuit safety system
Solid green for 5 seconds, short black, red for 1 second, short black		ESP-10 control ESP-10 is overheated
Black 1 sec, red 1 sec, black 1 sec, red 1 sec, black 1 sec, green 5 sec.		Voltage below optimal performance level. Aut. Reset when voltage is within optimal level. Otherwise powercircle ESP

Maintenance and troubleshooting

Safety precautions

The ESP-10, including the fan, must be inspected at least once a year in connection with inspection of the chimney, performed by competent personnel. Soot and other deposits must be removed from the fan rotor blades and from high voltage insulator.

When working on the roof you must follow the appropriate guidelines and provisions.

Important! The chimney sweep must be informed that the chimney is equipped with an ESP-10 filter. The user is responsible for informing the chimney sweep about the filter and provide him with the relevant documentation for inspecting the filter in accordance with official guidelines.

Before working on the ESP-10 and during maintenance the filter must be switched off and removal of plug from socket-outlet is mandatory before maintenance. ESP-10 must be supplied from a mains socket-outlet close to ESP-10. Further, let the particle filter cool down before servicing or cleaning. Make sure that the heat source and the electrostatic precipitator cannot be enabled accidentally.

Do not open any part of the ESP-10 unless the power supply is switched off at the power switch. The surface can be hot.

When the temperature in the exhaust system increases, the high voltage automatically switches on. Touching the electrode or any part inside the ESP-10 during operation may be fatal.

User maintenance

- The user should always pay attention to the status of the filter and react promptly if something out of the ordinary should occur.
- The user must react to abnormal noise or other abnormal operation.
  - The user must inspect the filter if any abnormal function occurs.
  - The user must contact certified assistance if the abnormal function cannot be resolved.
- The user is responsible for hiring a competent person to clean the chimney and carry out periodical inspections of the filter.

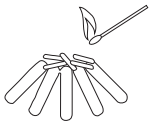
The automatic cleaning cycle varies with the intensity in usage. Frequent use results in frequent cleaning.

The filter must be inspect following the first month of operation to identify if any disproportionate contamination has built up.

Note! The ESP-10 must be serviced by a competent personal!

When cleaning, ensure that there is free passage for rain water through all drainage points.
The manufacturer cannot be held responsible for water ingress of any kind.

Operating fireplace or stove

	Starting the fire (Lighting): Place a few small logs and some kindling & firelighters in the fireplace/stove.
	Open the air intake completely on your stove/fireplace. Ignite the fire and close the door to the fireplace/stove. Make sure there is no spillage of flue gases from the fireplace opening.
	Shortly after igniting the fire, the fan will start up automatically and add draft to the chimney.
	When the fire has caught on and all the wood logs are burning, reduce the air intake on your stove/ fireplace.
	Refueling: In order to avoid getting soot and smoke into the room when adding wood to the fire, the fan will still run during the refueling. Open the fireplace door and place a few logs onto the embers.
	Post-purge: Stop refueling when you want to let the fire burn out. *Approx. 30-60 minutes after the fire has burned out, the particle filter will go into standby mode, and the fan will stop.*

DANGER! Check that the heating appliance (fireplace, furnace, etc.) is working properly after the particle filter has been switched on. Make sure that no flue gases are spilling out as this can lead to carbon monoxide poisoning!

Inspection and service

DANGER! Make sure the filter is unplugged or that the installed isolation switch is set to off during cleaning and service!

The filter is equipped with a cleaning function that automatically cleans the filter when powered up, periodically cleans it during operation and during standby. This should be enough to keep the filter compartment clean provided only dry and clean wood is being used in the stove.

The filter must be inspected at least once a year by a competent person. The chimney sweep must inspect both the filter compartment, the technical compartment and the fan compartment.

Inspection the outside of the filter

Inspection the general condition of the filter, the following must be observed

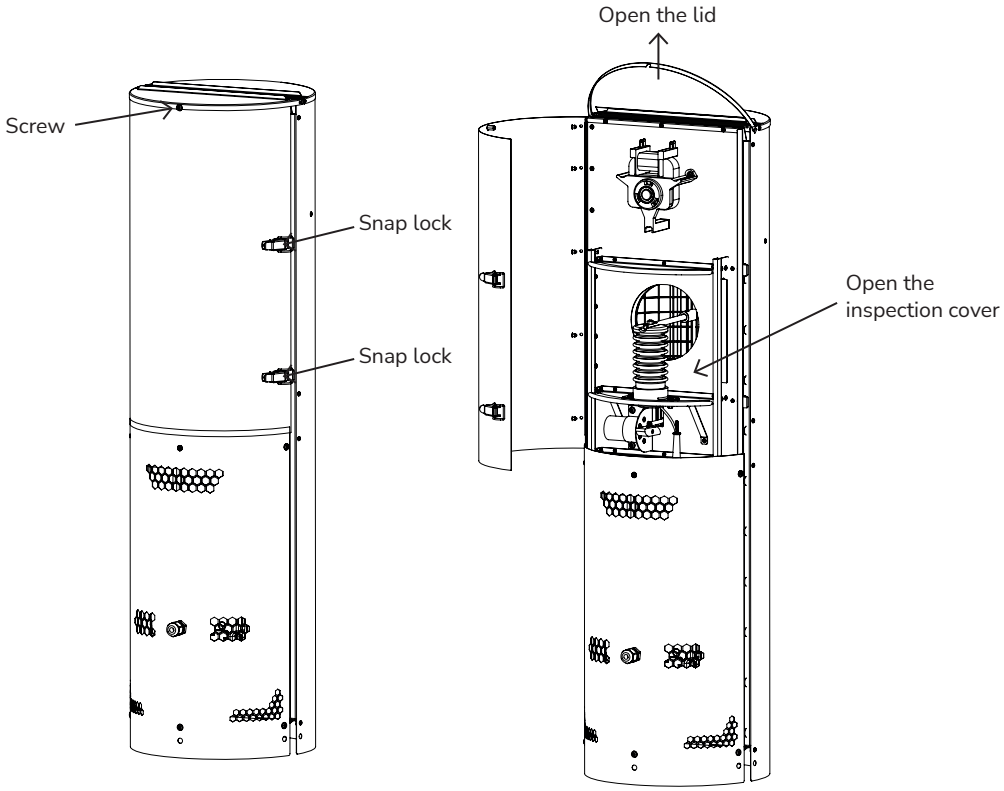
- Is the filter fixed to the chimney?
- Is the main switch in good and working condition?
- Are all covers and lids fastened correctly?

Inspection the inside of the filter

Inspection of the technical compartment, the cover must be open

- Loosen the screw in the lid for the electronic side, and open/tip the lid
- Open the snap locs for the hinges cover and open the cover competly up for inspection and service

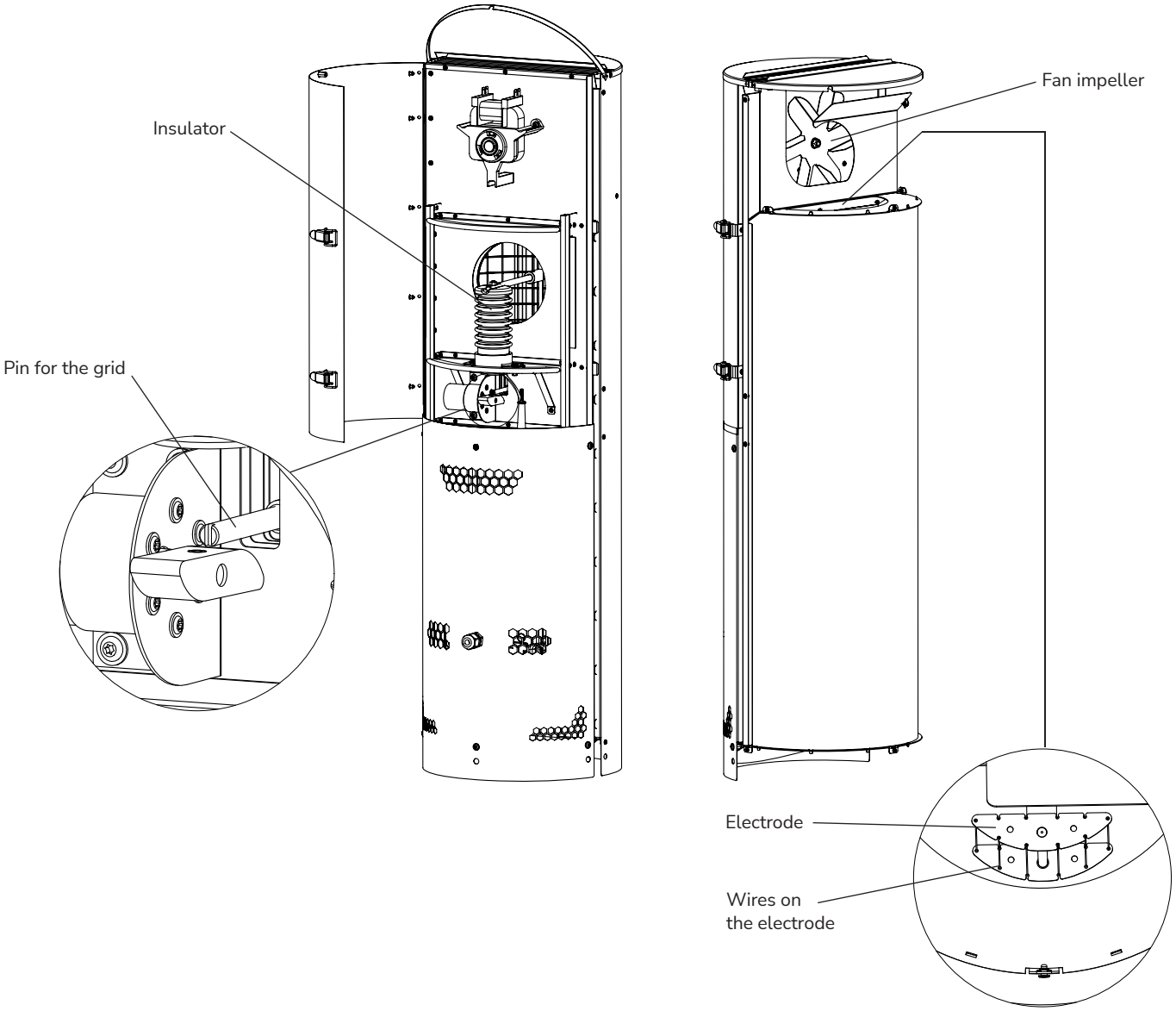
If removal of the cover with convection holes (in front of the control unit) is needed, remove all the screws on the cover, and remove/the cover can be taken off. To fasten the cover again, first, insert all the screws on the right side and then use a flat screwdriver or a small Allen key to pull the cover down over the mounting panel.



DANGER! Make sure that the filter is unplugged or that the installed isolation switch is set to off during service on general condition!

General condition of the inside of the filter, the following must be observed

- Is the collecting grid moving freely up and down? Check by moving the pin by hand
- Is the fan impeller moving freely? Turn the impeller by hand
- Check the type of soot in the filter pipe/grid and ESP-10. If creo soot, the stove is not used correctly
- General cleanliness of the filter, including technical compartment
- Is the electrode hanging straight inside the grid? Open the lid and check visually
- Condition of the wires on the electrode? Check that the wires are not broken



Replacing spare parts

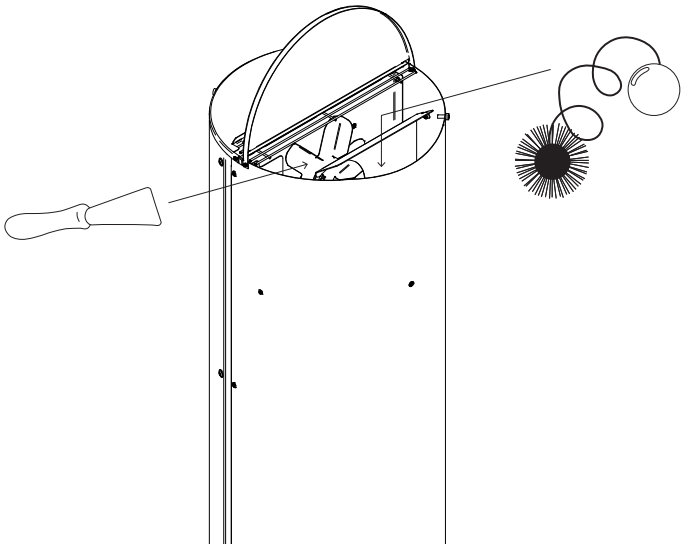
The replacing of spare parts must be done by competent personal. Apart from replacing the impeller, the cord or the electrode in case of damage, no other repairs to the ESP-10 are allowed on site. In case of defects, please contact your Exodraft dealer.

CAUTION! In case the original cord needs to be changed, only use a cord of the same type.

Cleaning procedure

Sweep cleaning of the filter and chimney

Step	Action
1	Switch off the installed isolation switch for the power to the filter and make sure the fan doesn't rotate.
2	Loosen the two screws and open the lid on the top section of the filter (smoke side)
3	Using a scraper or brush, carefully clean the axial vane/impeller.
4	Check the path taken by the smoke through the top and bottom sections of the fan for soot deposits, and clean where necessary with a scraper or brush.
5	The chimney must be sweep from below/ through a cleaning element
6	Make sure that the electrode hanging straight inside the grid after the celaning

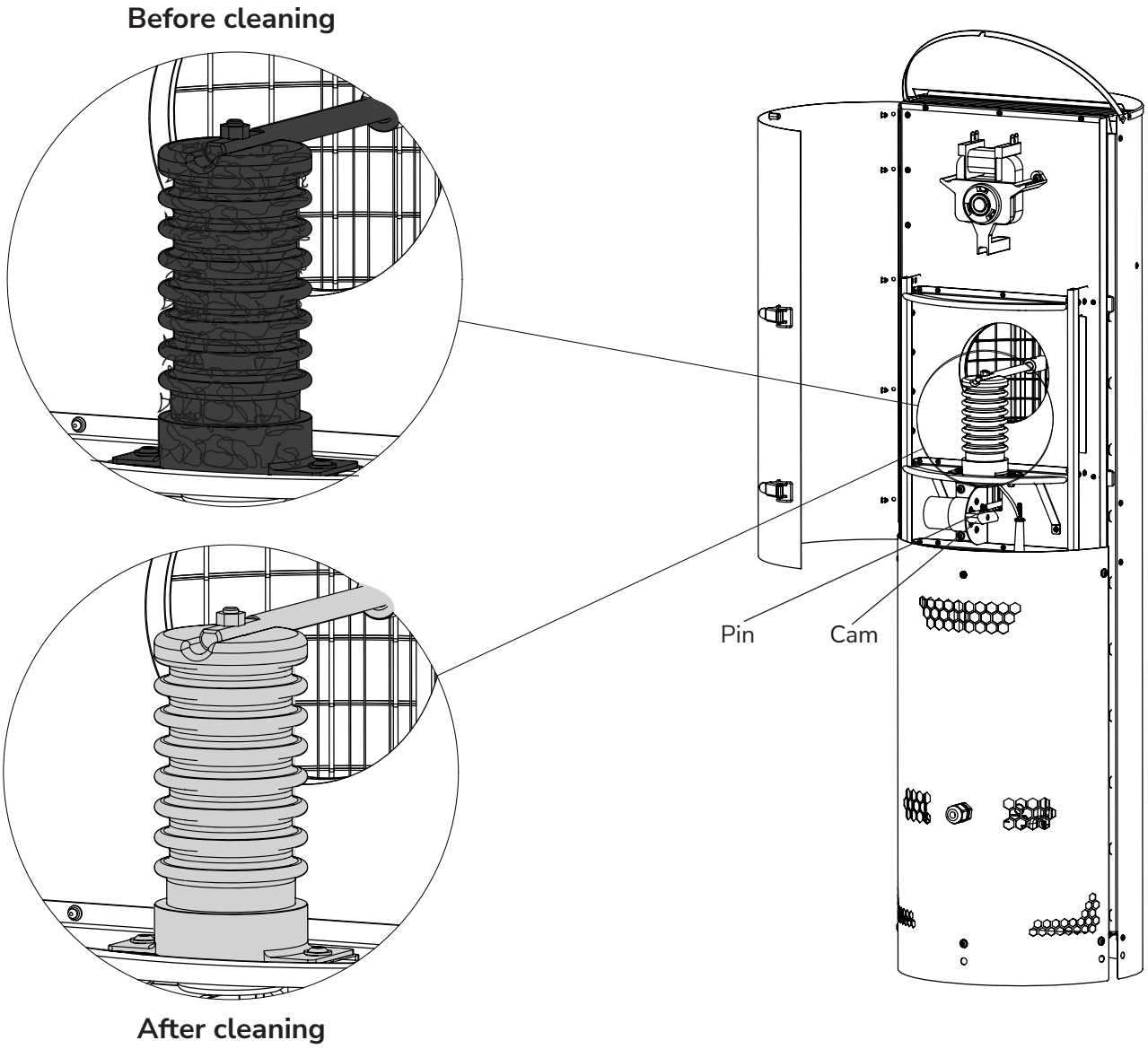


Cleaning and service of the insulator

- The insulator is cleaned with a piece of cloth using brake cleaner or similar. Cleaning needs to be done all the way around the insulator.

- Check that the inside seal in the technical side is undamaged.

- Check that pin and cam for the automatic cleaning system is tightened firmly.



Troubleshooting

The filter first reaches its full efficiency after 10-20 fires or burning of approx. 15-20 kg of firewood.

Troubleshooting when warning lights are on. See also the chapter for diagram showing LED light status.

Observation	Problem	Solution
LED constant red	General failure	Toogle powersupply to ESP off-5sec-On If no change in status, call for service
When powered on: Green flashing 15 sec, constant red 5 sec, constant green	Automatic cleaning failure	Can be mechanical or timing failure. If cleaning grid sound correct when cleaning it is okay. Else it can be mechanical, call service
Flashing red LED	Poor or no PE connection	Connect the power supply to a grounded power outlet
Red/green light flashing once a second for 10 minutes	Current limiter/sparkover safety system activated	Check the alignment of the electrode
Red/green light flashing 5 times per second	Current limiter/short circuit safety system activated	Check the alignment of the electrode and inspect the electrode for defects

Other problems and solutions

Observation	Problem	Solution
No power supply to the filter	The power is off	Check the power supply Check the installed isolation switch for the filter
The power supply to the filter is on but it is not working	Poor or no PE connection	Have certified personel establish or check ground connection. Ground resistand must be < 800KΩ
The power supply to the ESP-10 is connected but the fan hums and does not spin	Soot may block the impeller	Clean the ESP-10, including the fan
The filter does not automatically turn on even though the fire is lit	The flue gas temperature has not yet reached 40 degrees Celsius The filter is switched off or has no power supply Temperature sensor is not working	Wait until flue gas temperature has reached a high enough temperature Check the power supply and the on/off switch Check the position and connection of the temperature sensor
The ESP-10 vibrates during cleaning	This is OK. Simply a part of the cleaning function.	Check if the LED for “cleaning function” is flashing.
The ESP-10 vibrates during normal operation	The motor shaft on the fan may be bent	Have certified personnel change the motor
Noises are coming from the ESP-10	There might be “spark overs” Foreign objects may be stuck inside The motor bearings may be worn out	This is normal for short periods. If ongoing check electrode alignment Remove foreign objects Have certified personnel change the motor
The self-cleaning function is not working	Cut the power, and make and ispection/ service of the filter	1. Cut the power for 10 seconds 2. Remove the cover on technical side. 3. Check that the cam is tightened firmly to the motor axel. 4. Check that the pin is in place 5. Check that the wires from the motor are connected to the controller

UK Conformity Assessed

Exodraft a/s
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Hereby declares that the following products:

ESP-10-STEEL, ESP-10-BLACK

Were manufactured in conformity with the provisions of the following regulations:

The Supply of Machinery (Safety) Regulations 2008

Electrical Equipment (Safety) Regulations 2016

Electromagnetic Compatibility Regulations 2016

Langeskov, 08-07-2026
Managing Director
Lars Søberg

CE

Declaration of Conformity

DK:	EU-Overensstemmelseserklæring
GB:	Declaration of Conformity
DE:	EU-Konformitätserklärung
FR:	Déclaration de conformité de l'Union Européenne
NO:	EU-Samsvarserklæring
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Erklærer på eget ansvar, at følgende produkter:
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ESP-10-STEEL, ESP-10-BLACK

Som er omfattet af denne erklæring, er i overensstemmelse med følgende standarder:
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Die von dieser Erklärung umfaßt sind, den folgenden Normen:
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Sono stati fabbricati in conformità con le norme degli standard seguenti:

EN 60335-1, EN 60335-2-80, DS/EN ISO 12100: 2011

I.h.t bestemmelser i direktiv:
In accordance with
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Lavspændingsdirektiv:
The Low Voltage Directive:
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Lavspenningsdirektivet:
Dyrektywą Niskonapięciową
De laagspanningsrichtlijn:
Lågspänningsdirektivet:
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EMC-direktivet:
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En de EMC richtlijn:
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EMC-direktiivi:
EMC-eftirlitið:
Direttiva Compatibilità Elettromagnetica:

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Langeskov, 08-07-2026
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Managing Director
Lars Søberg

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