Operating Instructions

MOBEX F W3

(Hazardous substance-verified, welding fume separation class W3)

IFA 1305020

Gefahrstoffgeprüft
Schweißrauch-
abscheideklasse W3

MOBEX F-40 W3 (Order no.: 09835)
MOBEX F-60 W3 (Order no.: 09836)

and variations

Do not use this device unless you have
read the user manual and understand it.

Translation of the original instructions
09835-08-01

Edition notice

Original operating instructions
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Type of device: Stationary welding fume filter MOBEX F W3
Item no.: 09.835 // 09.836 and versions

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ESTA Apparatebau GmbH & Co. KG
Gotenstr. 2-6
89250 Senden
Germany

Tel.: +49 (0) 73 07 80 4 -0
Fax: +49 (0) 73 07 80 4 -500
Email: info@esta.com
www.esta.com

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Contents

1. General instructions

Before operation, all persons who are to use the device or perform maintenance on it must be provided with information, instructions and training in using the device and on the substances for which it is to be used, including the procedure for safe disposal of the collected material. Responsibilities must be clearly established for the following:

- **Installation**
- **Commissioning**
- **Operation**
- **Maintenance and repairs**

Read the operating manual carefully before working with the device.

The device must be used only by persons who have been instructed in its handling and are explicitly authorised to use it.

Always keep the operating manual at the place where the device is being used, so that it can be seen by personnel at all times.

2. Product identification

2.1 Technical data

We reserve the right to make technical changes.

Item no.		**09835**	**09836**
Type MOBEX		**F-40 W3**	**F-60 W3**
Filter type		Filter cartridge	
Number of filter elements	[units]	2	3
Filter area	[m²]	40	60
Max. vacuum	[Pa]	3,400	3,400
Max. volume flow	[m³/h]	2,800	4,500
Drive power	[kW]	3.0	4.0
Connection voltage	[V]	400	
Nominal frequency	[Hz]	50	
Nominal current	[A]	7	9
Circuit breaker	[A]	C16A (circuit breaker)	
Protection class		IP 54	
Dust collection drawer	[l]	100 - 150	
Dust collection container (per ~38 litres)	[units]	2	
Intake connection piece ø	[mm]	200	250
Dimensions (L x W x H)	[mm]	1,910 x 1,040 x 2,030	2,030 x 1,040 x 2,030
Average sound pressure level Lpa	[dBA]	71	74
Weight	[kg]	approx. 310	approx. 350
Production year		See model plate	

* using the enveloping surface method DIN EN ISO 3744, measured at minimum volume flow; noise measurement margin of error approx. 4 dBA

2.2 Intended application

2.2.1 Ambient conditions

Ambient temperature	[°C]	$5 \leq \vartheta \leq 40$
Rel. humidity	[%]	30 - 70

2.2.2 Intended use

The device has been manufactured based on state-of-the-art technology and according to recognized safety regulations and must be used as intended:

- For commercial use, such as in industrial enterprises and workshops.
- For the separation of dry, non-flammable welding fumes.
- For the separation of smoke from unalloyed and low-alloy steels; e.g. with low nickel and chrome content.
- For the separation of smoke from steels with an alloy content of, for example, nickel and chrome ≤30%.
- For the extraction of smoke from high-alloy steels.
- For extraction at individual welding workstations.
- As a central extraction system for multiple welding workstations.
- Only for dry cleaning.

Other applications are considered unintended use. ESTA is not liable for damages due to unintended use!

The manufacturer sets up the device according to the operator's information.

2.2.3 Improper use

The device has been manufactured according to the state of the art and recognized safety regulations. Unintended use may cause hazards.

Therefore:

- **Not** for extracting welding fumes during the welding of oil-covered parts.
- **Not** for the extraction of flammable welding fumes.
- **Do not** use or store outdoors or in wet conditions.
- **Do not** change the location of the device during suction operation.
- **Do not** set up or operate in dust/gas-explosive areas.
- **Do not** use in painting operations.
- **Do not** connect to processing machines that may produce active ignition sparks or hot embers.
- **Do not** suck up readily flammable or glowing particles.
- **Do not** suck up liquids.
- **Do not** suck up aggressive gases.

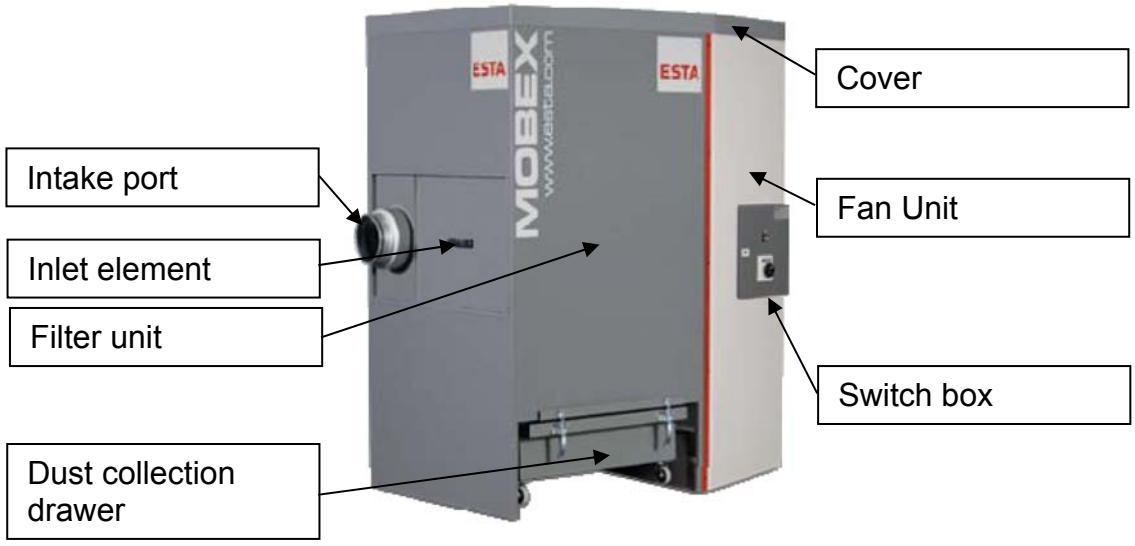
2.2.4 Reasonably foreseeable misuse

- **Do not** suck up hot embers, such as cigarette butts.
- **Do not** cause complete closure of the suction ports.

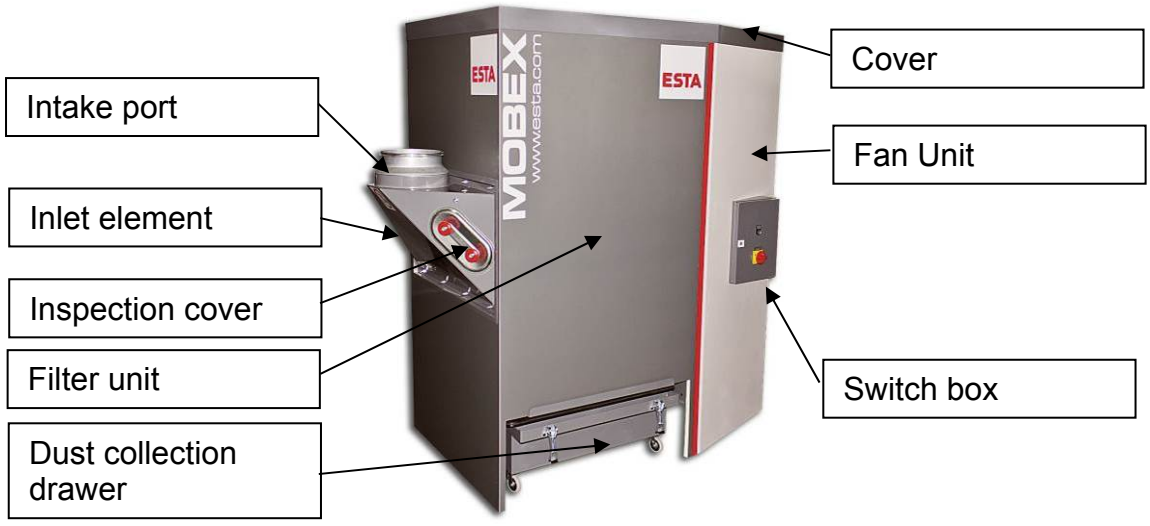
3. Product description

3.1 Picture of the device

3.1.1 MOBEX F-40 W3



3.1.2 MOBEX F-60 W3



3.2 Functional description

The device is equipped with a three-phase motor which drives a radial fan. The device is supplied with or disconnected from the requisite power via a main switch. The device starts up immediately once turned on at the main switch.

The vacuum created by the fan draws air through the suction pipe or hose connected to the intake port. Permanent filters within the filter housing extract the dust in the extracted air. The purified air is guided back into the room draught-free through the outlets on the top of the device.

With the filter cartridges used, the device is equipped with a vacuum monitor as a control device for overseeing minimum airflow volume. This control device measures the negative pressure behind the filters. With increased dust soiling of the filters, the flow resistance increases along with the negative pressure behind the filter.

Once the value set on the vacuum monitor is reached, an optical/acoustic signal indicates this and the filter cartridges are automatically cleaned with compressed air. A pneumatic jet pulse cleaning device is integrated for this purpose. Intense pulses of compressed air are successively introduced into the filter cartridges. As a result, the filter elements are freed of dust and regenerated. The dust collection container attached below the filter collects the dust that has been cleaned off. If the filter cartridges continue to clog, and the set minimum volume flow is thus reached in the device, this will be indicated by an optical/acoustic signal. System shutdown and inspection is mandatory.

For easy disposal of the collected dust, the dust collection drawer is unloaded, pulled out, the dust collection container tightly sealed with a lid and sticky tape and the dust collection container taken out including its contents.

The device is fitted with a pre-separator / baffle. This pre-separator / baffle is installed in front of the actual filters, behind the intake connection piece, which pre-separates coarse particles and thus prevents these coarse particles being sucked against the filter. The pre-separator / baffle must be checked regularly for soiling. When doing this, please follow the safety instructions for cleaning.

3.3 Monitoring the minimum airflow volume

The minimum volume flow is monitored through differential pressure measurement. This is integrated within the switch cabinet. If the nominal volume flow set at the factory is fallen short of, the automatic cleaning of the filter cartridges begins. The filter cartridges are automatically cleaned with compressed air. Once the minimum volume flow set in the device has been reached, this is indicated by an optical/acoustic signal. System shutdown and inspection is mandatory.

Extraction elements with various intake connection piece diameters can be operated with the device. When so doing, you must ensure that

- The minimum airflow volume sucked away is not undershot.
  - The minimum airflow volume depends on the diameter of the intake connection piece of the extraction element and the requisite conveying velocity.

4. Safety instructions

4.1 Hazard categories

Safety instructions and cross-topic information are indicated in this manual by symbols.

Based on the severity of the hazard, the hazard warnings are categorized as follows:

	**DANGER** Hazard warning about an immediate danger to people. Failure to comply can lead to severe injury or death.

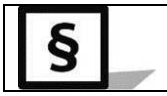
	**WARNING** Warning about a recognisable hazard. Failure to comply can lead to severe injury or death, and can destroy the device or parts thereof.

	**CAUTION** Instruction about a hazard. Failure to comply can lead to mild injury and to damage to the device.

4.2 Symbol explanation

	Further information

	Reference to ESTA customer service

	Reference to legal regulations

4.2.1 Symbols on the device

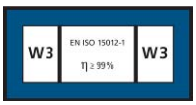
- Switch off the device.
- Wait 5 minutes.
- Then pull out the dust collection drawer or open the device.

Before commissioning, read and observe the operating manual and safety instructions (per ISO 11684)

Warning of hand injuries (as per BGV A8 W27)

Load the area only briefly with a maximum of 175 kg.

Do not take in glowing dust or other sources of ignition. Do not use in conjunction with spark-generating machinery.



The device complies with welding fume separation class W3. Separation efficiency (as per DIN EN 15012-1) of ≥99% is reliably maintained!

4.3 General safety instructions

During extraction, the volume flow returned from the device into the room should be no more than 50% of the air supplied. With open room ventilation, supply air flow should be assumed as equal to the room volume every hour. This means that the rate of air replacement must be once per hour.

$$\text{Supply air flow } [m^3/h] = \text{Room volume } [m^3] * \text{Air replacement rate } [1/h]$$

Example:
When the device is operating at the nominal airflow volume of 1,060 m³/h, the same volume of fresh air must be fed in. This occurs with natural ventilation if the volume of the work room is 1,060 m³ (e.g., 353 m² surface with a 3 m ceiling height).

§	According to work equipment user directives 2009/104/EC and TRGS 560, safety devices for prevention or removal of hazards must be regularly maintained and regularly inspected by an expert for safe, flawless operation.

In all emergencies, the device must be disconnected from the power supply immediately, turned off at the main switch and the plug pulled immediately.

If there is a fire, alert the fire department immediately, and contain the fire by appropriate means. Therefore keep a suitable extinguishing agent near the device before start-up and during operation.

4.4. Preventing mechanical hazards

⚠	**WARNING** Crushing hazard due to loose or open covers • Keep covers closed during operation!

All movable machine parts driven by electric motors must be covered by fixed, securely fastened protective covers that can be removed only with tools.

4.5 Preventing electrical hazards

	**DANGER** Electric shock from high voltages • Follow the safety rules for working with electrical devices! • Secure the device against reactivation with a padlock! • Render the device voltage-free by pulling the mains connector! • Any work on the electrical grid and on voltage-conducting parts may only be performed by an electrical specialist.

	**DANGER** Electric shock from high voltages when power cable is damaged • Do not damage by running over, crushing, straining, etc. • Regularly check the power cable for damage and ageing. • Do not use if damage has been found on the power cable! • Any work on the electrical grid and on voltage-conducting parts may only be performed by an electrical specialist. • Use only original ESTA replacement parts.

	**DANGER** High-voltage electric shock when working on the open switch box • Turn off at the main switch and secure with a padlock against reactivation! • Render the device voltage-free by pulling the mains connector! • Any work on the electrical grid and on voltage-conducting parts may only be performed by an electrical specialist.

	**DANGER** Residual hazard from loose or open covers • Keep covers closed during operation! • Any work on the electrical grid and on voltage-conducting parts may only be performed by an electrical specialist.

All electrical parts must be covered by fixed, securely fastened protective covers that can be removed only with tools. The device complies with Protection Class I according to EN 60 335.

After use, before moving the device to another site and before cleaning, maintenance, or replacement or removal of movable parts, switch off the system at the main switch and pull the mains connector.

4.6. Preventing dust hazards

	**CAUTION**
	Damage due to dust release
	• Maintenance, cleaning, servicing and emptying work only by specialist personnel.
	• Wear personal protective gear.
	  - Respirator mask (particle filter class P3)
	  - Protective clothing
	  - Protective gloves
	• Set up locally filtered forced-air ventilation where the device is being maintained, inspected or cleaned.
	• Operate the device only with the complete filtration system.
	• Seal the intake connection piece with a sealing plug so it is dust-tight when transporting.

	**CAUTION** Damage from dust release when cleaning filter media (cartridges, mats, etc.) in a dismantled state. • Used filter media must never be cleaned through blowing or beating them out! • Always dispose of used filter media packaged in an airtight condition in accordance with local regulations!

	**CAUTION** Damage due to dust build-up in the pipe system • Check the connected piping system regularly for dust deposits. • Observe the minimum air speed for your application and the resulting minimum airflow volume.

When removing the dust collection container, it is possible to inhale dust. That is why all servicing, cleaning and maintenance procedures, including the removal and emptying of the dust collection container, are only to be performed by specialist personal with personal protective equipment.

The people assigned to cleaning work must be instructed on the aspirated toxic materials. Harm to bystanders and the environment must be prevented by all means. Clean the maintenance area thoroughly once maintenance is complete.

4.7 Preventing noise hazards

CAUTION

Danger of hearing damage from release of compressed air impulses when filter elements are being cleaned

- Keep device covers closed.
- Wear hearing protection.
- Only open the device with the compressed air tank depressurised.
  To do this:
  - Turn the device off at the main switch
  - Wait for the automatic post-cleaning to end
  - Disconnect the compressed air supply directly from the switch cabinet
  - Empty the compressed air tank – through "Start cleaning" if necessary
- Only open the device when stopped.
  To do this:
  - Cut off the power supply by pulling the electrical plug

If the device, in particular the cleaning module, has to be opened during operation, the automatic cleaning can be started by the control system during normal operation. Cleaning pulse forces are harmful to human ears. The manometer attached to the compressed air tank is used for monitoring the pressure in the tank.

After use, before moving the device to another site and before cleaning, maintenance, or replacement or removal of movable parts, disconnect the compressed air at the switch cabinet.

5. Delivery and commissioning

5.1 Delivery and transport

DANGER

Danger from falling device

- Do not walk under heavy loads.
- The lifting equipment must be designed for the weight of the device.

WARNING

Crushing hazard if the device settles during transport

- Secure the device during transport.
- Wear safety shoes.

CAUTION

Risk of damaging the device due to improper transport.

- Do not push the device over the floor if it does not have any rollers.
- Use only suitable lifting equipment (such as a crane) and transport equipment (such as a forklift or lift truck) when transporting the device to its set-up location.
- Watch out for the centre of gravity – which is not in the centre – when positioning.

Make sure the floor has adequate weight capacity and can be properly driven on when transporting the device.

At delivery, the device is fastened to a pallet. Remove the protective cover and floor securing devices. Inspect the delivery for completeness. Lift the device with a crane or forklift from eye hooks positioned at the top of the device. Please pay attention to the weight of the device and its high centre of gravity during all transport work.

Upon delivery, please inspect the device for transportation damage. Damage determined must be reported and documented immediately.

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5.2 Connection

Before establishing cable connections between the device and the mains, check whether the operating voltage specified on the rating plate matches that of the mains.

Place the device on an even surface as close as possible to the welding fume source. Ensure the device is aligned horizontally when setting it up. To do this use the small packing plate enclosed with the delivery as assembly material.

5.2.1 Control cabinet description

The switch cabinet is equipped with the following elements.

MAIN SWITCH
Device main switch for turning the device on and off. The device starts up immediately following activation.
This can be secured with a lock against unintentional activation.

START CLEANING (pushbutton)
Is used for the manual starting of the cleaning equipment.

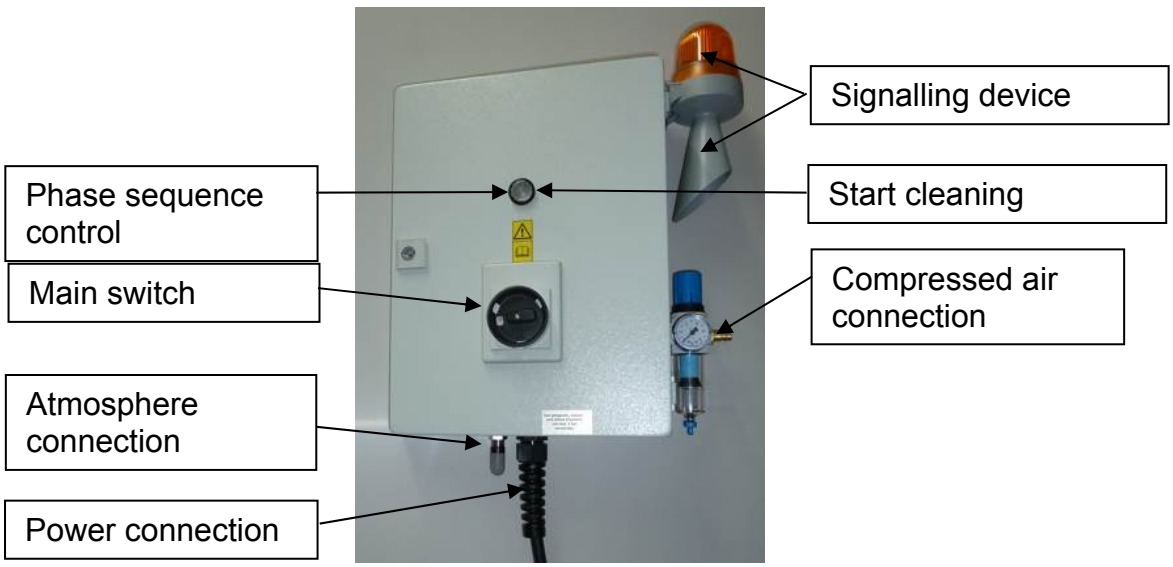
PHASE SEQUENCE CONTROL (light in pushbutton)
Lights up when the electrical rotating field is incorrect at start-up.

POWER CONNECTION
For the connection to the required power supply. The mains connector is simultaneously used to isolate the device. In the event of an emergency, pull this as EMERGENCY OFF.

COMPRESSED AIR CONNECTION
For the connection to the required compressed air supply.

SIGNALLING DEVICE
The signalling device is used as an optical/acoustic signal for warning of extraordinary operating conditions, such as the undershooting of the minimum flow volume.

ATMOSPHERE CONNECTION
For measuring the pressure against the atmosphere. In connection with the negative pressure measured in the device, this provides the differential pressure.



5.2.2 Pneumatic connection

WARNING

Risk of corrosion when using unfiltered compressed air.

- Use a compressed air maintenance unit to make sure that only oil- and water-free compressed air is fed to the device.

Compressed air is required for the pneumatic jet pulse cleaning of the filter elements. Connect oil and water-free compressed air to ensure operational safety and machine availability.

The connection to the compressed air system is made at the installation location.

		MOBEX	
		F-40 W3	F-60 W3
Pressure	[bar]	4 - 6	
Connection-ø	[']	1/4 (ø9mm)	
Compressed air consumption *	[l/pulse]	19	
Manometer settings	[bar]	3	

* at 4 bar with a valve opening time of 0.12 sec.

5.2.3 Electrical connection

DANGER

Electric shock from high voltages

- Follow the safety rules for working with electrical devices!
- Secure the main switch against reactivation with a padlock when working on the device.
- Render the device voltage-free by pulling the mains connector!
- Any work on the electrical grid and on voltage-conducting parts may only be performed by an electrical specialist.

A CEE wall socket with a slow-blow fuse must be in place to supply the device with power.

Connection to the building's power supply is made at the installation location.

Connection plug	[Amp.]	CEE 16 Amp.
Mains (standard)*		Three-phase current 400 V; 50 Hz; 3 N~
Fuse	[Amp.]	C16A (circuit breaker)

* Custom voltage on request; observe the specifications on the rating plate.

5.2.4 Activation operations for motors:

Motors with high output without frequency converters should be not be switched on and off within a short period of time too frequently. Otherwise, electrical components could overload as a result. Please observe the table for activation operations:

Motor output	Activation operations per hour
1 – 4 KW	**Up to 8 starts**
4 – 7.5 KW	**Up to 6 starts**
7.5 – 15 KW	**Up to 4 starts**
15 – 30 KW	**Up to 3 starts**
From 30 KW	**Electronically controlled overrun time**

5.3 Function check

	Before the device is first used, a function check must be performed.

Turn the main switch to position "I" for a device function check.

5.3.1 Rotation direction monitoring

When the direction of rotation is incorrect, the device becomes impermissibly hot, the volume increases, the airflow volume falls, and the device's suction performance suffers. Damage to the device cannot be ruled out.

After first switching on the device, you should check that the fan rotor's direction of rotation is correct.

- ➢ Switch on the device at the main switch.
- ➢ The signal light of the phase sequence control lights up.
  - Switch off the device at the main switch and secure it against reactivation.

	**DANGER** Electric shock from high voltages • Any work on the electrical grid and on voltage-conducting parts may only be performed by an electrical specialist.

  - Pull the power plug.
  - Turn the phase inverter in the CEE plug.
  - Insert the power plug.
  - Switch on the device at the main switch.
  - The signal light of the phase sequence control no longer lights up.
- ➢ Turn the device off at the main switch.
- ➢ The device is ready for operation.

5.4 Preparing the dust collection containers

5.4.1 Base body

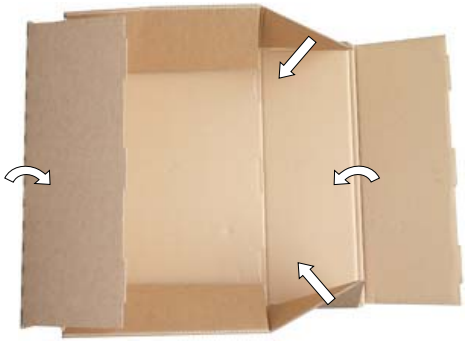
Dust collection containers are inserted in the dust collection drawer. Prepare this as follows:

1.

2.

3.

4.



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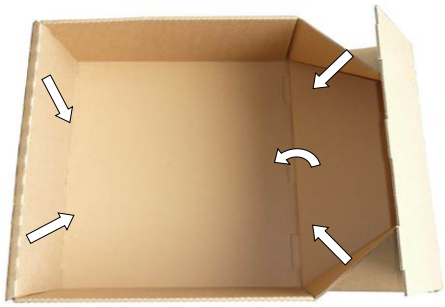

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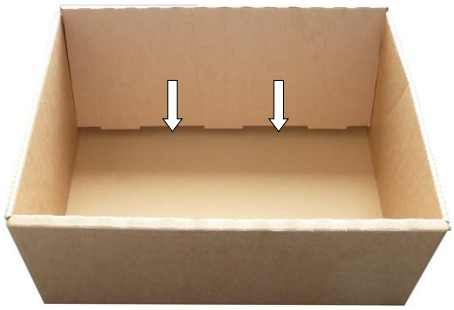
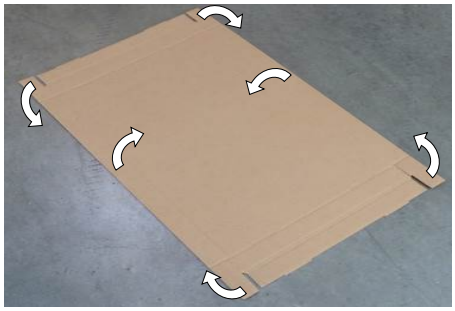


5.4.2 Lid for dust collection containers

To lock the dust collection container, a lid is placed on the opening. Prepare this as follows:

1.



2.

3.

4.

5.

5.5 Commissioning

	Use original ESTA accessories.

Once a functional inspection has been completed, the connection is made to the processing apparatus that is to be extracted.

- Disconnect the compressed air.
- Pull the power plug.
- Place the device on an even surface as close as possible to the workstation.
- Insert the power plug.
- Reconnect the compressed air.

For putting into operation.

- Insert the empty dust collection container without lid into the dust collection drawer.
  - Flip the clamping locks up.
  - Unhook the clamp from the bar.
  - Pull out the drawer slowly and carefully.
  - Insert a new, empty dust collection container in the holder of the dust collection drawer.
  - Slide the dust collection drawer all the way back into the device.
  - Hook the clamp onto the bar.
  - Flip the latches downward so that the drawer is firmly locked upward.

5.6 Suction line connection

	We recommend you place a spark pre-separator and a fire-extinguishing system in front of the device. For more information, please contact ESTA customer service: +49 (0) 7307 804 - 0

- Connect the processing machine to be vacuumed to the device's intake connection piece through a pipe or hose line.
  For a suction line, use
  - an appropriate suction hose that meets the national requirements for this application.
  - an appropriate pipe (wrap fold) that meets the national requirements for this application.
  - approved adapters for short diameter on the connection piece.

	If the vacuum monitor is changed, the pipe diameter increased or the pipeline lengthened, it cannot be guaranteed that no dust deposits will collect in the pipeline. Observe the minimum air speed for your application. Regularly check the pipeline for dust deposits.

5.7 Troubleshooting during commissioning

Fault	Possible cause	Possible solution
The motor shuts down before reaching the operating speed.	The switching devices present are incorrectly set up or unsuitable. Time for star-delta switch incorrectly set.	Adjust the switching devices accordingly; possibly provide for heavy starts. Check time relay; reset if necessary.
Motor power consumption is too high.	Direction of motor rotation is incorrect.	Change the rotation direction by turning the phase inverter in the connector.
The desired air quantity is not reached.	Direction of motor rotation is incorrect.	Change the rotation direction by turning the phase inverter in the connector.
The supply cable's preliminary fuse has tripped.	Motor was switched on/off too often within a short period of time.	Please consult the "Activation operations for motors" table.

If the vacuum monitor is changed, the pipe diameter increased or the pipeline lengthened, it cannot be guaranteed that no dust deposits will collect in the pipeline.

Observe the minimum air speed for your application. Regularly check the pipeline for dust deposits.

6. Operating instructions

6.1 Operating the device

After connecting the suction pipe to the dust source:

- Switch on the suction device.
- Start processing machine / extraction element.
- Start the processing operation.

During operation, do not change the device's location.

When finishing the processing operation:

- End the processing operation.
- Switch off processing machine / extraction element.
- Switch off suction device.

	For optimum welding fume collection, position the extraction element based on the thermally induced motion of the welding smoke.

6.2 Jet pulse cleaning

	**CAUTION** Risk of hearing damage due to the pulsed release of compressed air. • Wear hearing protection. • Do not open the device during the cleaning cycle.

Pneumatically operated filter cleaning, so-called jet pulse cleaning, is built into the device. This works in the following ways:

- Automatic cleaning during suction operation
- Automatic post-cleaning
- Manual cleaning (only possible during operation)

6.2.1 Automatic cleaning during suction operation (online filter cleaning)

When?

- Suction power weakens.
- The device reaches the preset minimum airflow volume.

How?

- Cleaning cycle starts automatically during suction operation.
- Intense pulses of compressed air are successively introduced into the filter cartridges.
  - Illuminated button flashes until cleaning cycle is completed.

6.2.2 Automatic post-cleaning

When?

- Device is switched off at the main switch.

How?

- Cleaning cycle starts automatically while the fan is still running.
- Intense pulses of compressed air are successively introduced into the filter cartridges.
  - Illuminated button flashes until cleaning cycle is completed.

6.2.3 Manual cleaning (only possible during operation)

When?

- At any time during operation.
- The device is witched off and the automatic post-cleaning cycle is complete.
  - E.g. to empty the compressed air tank prior to opening the device.

How?

- Press the "Start cleaning" illuminated pushbutton on the switch cabinet.
- Intense pulses of compressed air are successively introduced into the filter cartridges.
  - Illuminated button flashes until cleaning cycle is completed.

7. Maintenance & troubleshooting

7.1 Maintenance instructions

CAUTION

Damage due to dust release

- Maintenance, cleaning, repair and emptying work must be done only by expert personnel.
- Wear personal protective gear.
  - Respirator mask (particle filter class P3)
  - Protective clothing
  - Protective gloves
- Set up locally filtered forced-air ventilation where the device is being maintained, inspected or cleaned.
- Seal the intake connection piece with a sealing plug so it is dust-tight when transporting.

CAUTION

Danger of hearing damage from release of compressed air impulses when filter elements are being cleaned

- Keep device covers closed.
- Wear hearing protection.
- Only open the device with the compressed air tank depressurised.
  To do this:
  - Turn the device off at the main switch
  - Wait for the automatic post-cleaning to end
  - Disconnect the compressed air supply directly from the switch cabinet
  - Empty the compressed air tank – through "Start cleaning" if necessary
- Only open the device when stopped.
  To do this:
  - Cut off the power supply by pulling the electrical plug

For maintenance by qualified personnel, the device must be opened, cleaned and inspected at the given locations. During maintenance or repair work, all soiled objects that can no longer be adequately cleaned must be disposed of. Dispose of such objects in bags impermeable to dust in compliance with the applicable local regulations for disposal of such waste.

Conduct annual repeat examinations VDE 0701 – 0702, VDE 0600. Depending on the mode of operation, the time intervals could be shorter. In this process, the entire system must be checked for its seamless functioning by trained specialist personnel. Keep written proof of the main annual inspection in the maintenance book enclosed. The date of the inspection, detected deficiencies and the name of the auditor must be visible from this. The date of the next maintenance session can be read on the inspection plate installed on the device.

§	According to work equipment user directives 2009/104/EC and TRGS 560, safety devices for prevention or removal of hazards must be regularly maintained and regularly inspected by an expert for safe, flawless operation.

i	The maintenance work must be recorded in writing in the maintenance book provided. This must make clear the equipment inspected and, if necessary, the deficiencies found, along with the name of the inspector and the date of the inspection. When there is a malfunction, switch the device off immediately and contact the responsible maintenance service!

7.2 Inspection and maintenance intervals

Regular maintenance consists of the following intervals:

1. Daily inspection includes:

➢ ***By the device's user***

Visual inspection

- for damage to the device or its parts
- for mechanical damage to the power cable
- for a full dust collection container (regulations require that the container be emptied if it is more than 2/3 full),

2. Weekly maintenance includes:

➢ ***By expert maintenance personnel***

Visual inspection

- of the baffle for adhesions; remove these if present
- of the coarse dust collection drawer for the filling height and adhesions; empty where necessary and remove adhesions

3. Monthly inspection includes:

➢ ***By expert maintenance personnel***

Functional and visual inspection

- for filter leaks (dust trails or deposits on the air outlets)
- to ensure the minimum volume flow control is working
  → To check, shut the device's air inlet. If the optical/acoustic signal starts after approx. 30 seconds, the equipment is in order.
- Clean the device.
- Remove dust deposits.
- If the interior lining of the process chamber is damaged from wear, replace if necessary.

4. Half-yearly maintenance includes:

➢ ***By expert maintenance personnel***

Functional and visual inspection

- the filter mat on the device lid's outlets.
- The filter mat in front of the fan.

5. The main annual inspection includes:

The last test by ESTA is documented on the device.

➢ ***In collaboration with the ESTA maintenance service***

- Flow volume measurement
- Low-pressure measurement
- Power consumption measurement
- Visual check of filters
- Seal inspection
- Checking the compressed air tank → Drain condensation if necessary

After the main annual inspection, the device receives a new test plate to document that maintenance has been performed.

A maintenance contract ensures a long life and top-notch operation for your suction apparatus.
We'll make you a great offer — just call us up:

	Get the most from ESTA's maintenance service!

	ESTA maintenance service: +49 (0) 7307 804 - 0 ESTA replacement part service: +49 (0) 7307 804 - 0

7.2.1 Spare and wear parts

Use original ESTA replacement and wear parts!

With the device's model information and serial number, request the replacement parts you need from
ESTA replacement part service: +49 (0) 7307 804 - 0

Replacement parts	MOBEX F series	
	F-40 W3	F-60 W3
NanoAer filter cartridge	01001017 2 piece	01001017 3 piece
Dust collection container with lid	30008311 1 set [=06001074 8 pieces]	
Filter mat, outlet	01000520 1 piece	
Filter mat, fan	01000523 1 piece	
Disposal bag for filters	30000567 1 set [=06000358 10 pieces]	

7.3 Clean the air guide plate

	**CAUTION** Fire hazard from deposits on the baffle • Regularly remove flammable adhesions and deposits on the baffle, on the inspection cover and on the inside of the inlet container (MOBEX P-36). • Prevent spark ingress.

	**CAUTION** Damage due to dust release • Maintenance, cleaning, servicing and emptying work only by specialist personnel. • Wear personal protective gear. - Respirator mask (particle filter class P3) - Protective clothing - Protective gloves • Set up locally filtered forced-air ventilation where the device is being maintained, inspected or cleaned.

The baffle acts as a spark pre-separator. This reduces the ingress of coarse particles into the filter space, thus reducing the risk of filter fire from flying sparks. It also works as a form of targeted air channelling, whereby the service life of the filter cartridges is improved.
The baffle must be checked regularly for adhesions and cleaned where possible. Depending on the type of application, a weekly check of the external and internal sides of the baffle and the inlet element is necessary. If adhesions are detected in this process, please wipe these off with a damp disposable cloth, downwards, into the dust collection drawer, or remove them with a suitable industrial vacuum cleaner.

7.3.1 At MOBEX P-24

This process requires 2 people with personal protective gear. To clean the air baffle, do as follows:

- Switch off the device at the main switch.
- Disconnect the compressed air supply directly from the switch cabinet.
- Empty the compressed air tank – through manual cleaning, if necessary.
- Tap on the inlet element so that loose adhesions fall into the dust collection container.
- Wait for approx. 5 minutes so that the dust in the dust collection containers can settle.
- Then pull the power plug.
- Remove the pipe or hose line at the intake connection piece.
- As far as possible, wipe down the adhesions on the accessible part of the baffle through the intake connection piece using a damp disposable cloth, or vacuum it with a suitable industrial vacuum cleaner.
- Release the fastening nuts around the inlet element and take them out.
- A user holds the inlet element on the handle and tilts this carefully from above.

- If present → Detach the potential equalisation from the inlet element.
- The second user wipes the incrustations from the baffle and the entire inlet element with a damp disposable cloth, downwards, or vacuums these with a suitable industrial vacuum cleaner.
- Now take out the entire inlet element and clean this thoroughly.

- Visual inspection of whether the filter cartridges display mechanical damage.
- Visual inspection of the conductive interior lining of the process chamber for wear.
- Re-insert the inlet element.
  - Always check that the baffle is arranged properly when inserting the inlet element. (See illustration.)
- If present → Attach the potential equalisation to the inlet element.
- Insert the fastening nuts around the inlet element while the other user keeps this steady.
- Tighten the fastening nuts.
- Push the pipe or hose line onto the intake connection piece and fix this firmly.
- Re-attach the compressed air supply.
- Re-insert the power plug.
- The device is now ready to operate again.

7.3.2 At MOBEX P-36

This process requires 2 people with personal protective gear. To clean the air baffle, do as follows:

- Switch off the device at the main switch.
- Disconnect the compressed air supply directly from the switch cabinet.
- Empty the compressed air tank – through manual cleaning, if necessary.
- Tap on the inlet element so that loose adhesions fall into the dust collection container.
- Wait for approx. 5 minutes so that the dust in the dust collection containers can settle.
- Then pull the power plug.
- Remove the pipe or hose line at the intake connection piece.
- Remove the side inspection cover. To do this:
  - Release the turning handles up to the stop.
  - Hold the inspection cover at the turning handles and turn slightly.
  - Take the inspection cover out of the opening.

- As far as possible, wipe off the adhesions through both inspection openings using a damp disposable cloth, or vacuum with a suitable industrial vacuum cleaner.
  - On the accessible part of the baffle
  - On the inlet element
- Put the inspection cover back on. To do this:
  - Hold with the two turning handles.
  - Insert slightly twisted into the opening.
  - Align inspection cover.
  - Pull it towards yourself slightly.
  - Tighten the turning handles.
- Release the fastening nuts around the inlet element and take them out.
- One user holds the inlet element and tilts this carefully from above.
- If present → Detach the potential equalisation from the inlet element.
- The second user wipes the incrustations from the baffle and the entire inlet element with a damp disposable cloth, downwards, or vacuums these with a suitable industrial vacuum cleaner.
- Now take out the entire inlet element and clean this thoroughly.
- Visual inspection
  - of whether the filter cartridges display mechanical damage.
  - of the conductive interior lining of the process chamber for wear.
- Re-insert the inlet element.
- If present → Attach the potential equalisation from the inlet element.
- Insert the fastening nuts around the inlet element while the other user keeps this steady.
- Tighten the fastening nuts.

- Push the pipe or hose line onto the intake connection piece and fix this firmly.
- Re-attach the compressed air supply.
- Re-insert the power plug.
- The device is now ready to operate again.

7.4 Replacing the dust collection container

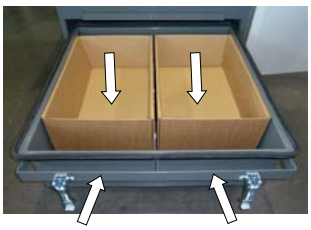
	Since the ESTA company does not know what types of dust are being extracted, it can be necessary to empty the dust collection container before it has reached its maximum fill level. (High bulk density → High weight.)

During cleaning, loose dust is removed from the filter cartridges. This dust accumulates in the dust collection containers of the dust collection drawer. Check and remove this based on the use of the device and when the maximum fill level is reached (approx. 2/3 of the container). This work should be done only by an expert with personal protective equipment!

Replace dust collection containers when no work is going on wherever possible. Prior to replacement, supply a lid for sealing and new dust collection containers

- Switch off the device at the main switch.
- Disconnect the compressed air supply directly from the switch cabinet.
- Empty the compressed air tank – through manual cleaning, if necessary.
- Wait about 5 minutes so the dust can settle into the dust collection containers.
- Flip the clamping locks up.
- Unhook the clamp from the bar.
- Pull out the drawer slowly and carefully.
- Place both covers on the dust collection containers.
- Remove the dust collection containers from the dust collection drawer separately.
- Seal the edge between dust collection container and cover with sticky tape so this is dust-tight.
- Write the dust class of the dust on the lid with a waterproof marker.
- Clean the inside of the dust collection drawer with a suitable industrial vacuum cleaner or with a damp disposable cloth.

- Insert a new, empty dust collection container in the holder of the dust collection drawer.
- Slide the dust collection drawer all the way back into the device.
- Hook the clamp onto the bar.
- Flip the latches downward so that the drawer is firmly locked upward.
- Re-attach the compressed air supply.
- Re-insert the power plug.
- The device is now ready to operate again.



7.5 Replacing filter cartridges

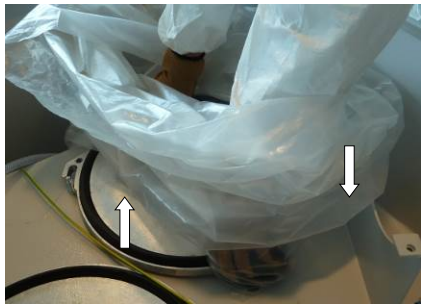
	WARNING Risk of falling from ladders • Use ladders with a minimum step height of 2 m.

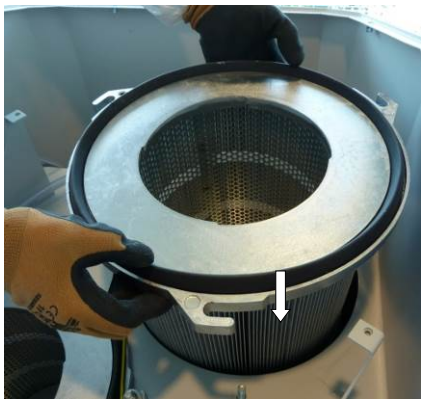
	CAUTION Damage from dust release when cleaning filter media (cartridges, mats, etc.) in a dismantled state. • Used filter media must never be cleaned through blowing or beating them out! • Always dispose of used filter media packaged in an airtight condition in accordance with local regulations!

After an extended period of operation, the filters clog up slowly due to the ingress of extremely fine dust in the pores. Jet pulse cleaning can no longer remove this penetrated dust. Filters must be replaced with new ones. This work should be done only by an expert.

If possible, filter replacement must be done when there is no work going on. This process requires 2 people with personal protective gear and a ladder. You may stand on the filter holding plate to remove the filter cartridges and the compressed air tank. Note the maximum temporary carrying capacity of the filter holding plate of 175 kg.

- Turn the device off at the main switch.
- Disconnect the compressed air supply.
- Empty the compressed air tank – through manual cleaning, if necessary.
- Pull the power plug.
- Unscrew and remove the fastening screws on the device cover.
- If present → Detach the potential equalisation from the cover.
- Take off the device cover on the handles.
- Remove the electrical connection cable from the solenoid valves.
- Release the pipe clip on the pressure hose and take off the compressed air tank with pressure hose.
- Release the compressed air tank bracket's fixing nuts.
- Completely remove compressed air tank with bracket.
- If available → Release the earthing screw on the filter cartridge and remove this from the filter cartridge together with the earthing cable.
- Loosen and completely remove the filter cartridges' fixing nuts.
- Fold the disposal bag over the edge of the filter cartridge.
- While the filter cartridge is being carefully taken out, the disposal bag is to be folded over the entire filter cartridge, piece by piece, by the second user.
- Close the end of the bag and fasten it securely with a cable tie.
- Remove subsequent filter cartridges according to the process described.
- Clean the rim around the opening for inserting the filter cartridge. Ensure that dust is not dispersed.
- Insert new filter cartridges. Look for an option for fixing the earthing screw.





- Use the earthing screws to fasten the earthing cable to the position provided.
- Insert the compressed air tank with bracket carefully. The outlets must be positioned centrally in the filter cartridge.
- Insert the fixing nuts for the filter cartridge and fasten them.
- Attach pressure hose to the compressed air tank and fix with pipe clip.
- Connect the electrical connection cable onto the solenoid valves.
- Replace the filter mat in front of the fan.
  To do this,
  - Release fastening nuts and remove them with the washers.
  - Remove the old filter mat.
  - Insert a new filter mat.
  - Reattach the fixing nuts and washers and tighten them.
- Replace the filter mat on the device lid's outlets. To do this,
  - Remove the old filter mat from the device lid without leaving residue.
  - Fix the new filter mat in the device lid.

CAUTION

Risk of crushing fingers when putting the lid on.

- Hold the lid by the handles and place on the device.
- Do not grab between housing and lid.

- Place the device lid on the device.
- If present → Attach the potential equalisation to the cover.
  Insert the fastening screws of the device cover and tighten them.
- If necessary, check the settings of the minimum volume flow monitoring.
- Re-attach the compressed air supply.
- Re-insert the power plug.
- The device is now ready to operate again.

7.6 Setting the minimum airflow volume monitoring

DANGER

High-voltage electric shock when working on the open switch cabinet

- Follow the safety rules for working with electrical devices!
- Secure the device against reactivation with a padlock!
- Render the device voltage-free by pulling the mains connector!
- Any work on the electrical grid and on voltage-conducting parts may only be performed by an electrical specialist.

If the pressure monitor is changed, the pipe diameter increased or the pipeline lengthened, it cannot be guaranteed that no dust deposits will collect in the pipeline.

Observe the minimum air speed for your application of 12m/s. Regularly check the pipeline for dust deposits.

The device for monitoring the minimum airflow volume is integrated into the control cabinet. To make the settings, proceed as follows:

- Turn the device off at the main switch.
- Disconnect the compressed air supply.
- Pull the power plug.
- Open the switch cabinet.
- Check the settings on the pressure monitor and adjust them, if necessary. (See table below)
  The following applies:
  - Pressure monitor B1 → Nominal volume flow
  - Pressure monitor B2 → Minimum volume flow

  In this process, please note the defined values for each machine size for the installed cartridge type and the defined connection diameter!
- Shut the switch cabinet securely.
- Re-attach the compressed air supply.
- Re-insert the power plug.
- The device is now ready to operate again.

7.6.1 MOBEX F-40 W3

The values in the following table are reference values:

Ø in mm		180	200	224
Nominal volume flow at approx. **17m/s**	[m³/h]	1,560	1,920	2,410
Guideline for pressure monitor B1	[Pa]	2,500	2,350	1,800
Minimum volume flow at approx. **12m/s**	[m³/h]	1,100	1,360	1,700
Guideline for pressure monitor B2	[Pa]	3,200	3,000	2,900

Here external losses of pressure that may occur through the connected pipeline are not considered. To calculate the setting value, where necessary, proceed as follows:

Setting value of pressure monitor = standard value of pressure monitor – external pressure loss

7.6.2 MOBEX F-60 W3

The values in the following table are reference values:

Ø	[mm]	224	250	280
Nominal volume flow at approx. **17m/s**	[m³/h]	2,410	3,000	3,770
Guideline for pressure monitor B1	[Pa]	2,600	2,500	1,600
Minimum volume flow at approx. **12m/s**	[m³/h]	1,700	2,120	2,660
Guideline for pressure monitor B2	[Pa]	3,300	3,200	2,900

Here external losses of pressure that may occur through the connected pipeline are not considered. To calculate the setting value, where necessary, proceed as follows:

Setting value of pressure monitor = standard value of pressure monitor – external pressure loss

7.7 Detach filter mat fan

	**CAUTION** Damage due to dust release • Operate the device only with the complete filtration system. • Regularly check whether the filter mats have clogged.

	**CAUTION** Damage from dust release when cleaning filter media (cartridges, mats, etc.) in a dismantled state. • Used filter media must never be cleaned through blowing or beating them out! • Always dispose of used filter media packaged in an airtight condition in accordance with local regulations!

A filter mat is installed in front of the fan. This must be checked regularly and replaced where necessary. Perform a visual inspection when you take off the device cover from the device during cleaning, repair or maintenance work. To do this,

- Turn the device off at the main switch.
- Disconnect the compressed air supply.
- Empty the compressed air tank – through manual cleaning, if necessary.
- Pull the power plug.
- Unscrew and remove the fastening screws on the device cover.
- If present → Detach the potential equalisation from the cover.
- Take off the device cover on the handles.
- Release fastening nuts and remove them with the washers.
- Remove the old filter mat.
- Insert a new filter mat.
- Reattach the fixing nuts and washers and tighten them.

	**CAUTION** Risk of crushing fingers when putting the lid on. • Hold the lid by the handles and place on the device. • Do not grab between housing and lid.

- Place the device lid on the device.
- If present → Attach the potential equalisation to the cover.
- Insert the fastening screws of the device cover and tighten them.
- Re-attach the compressed air supply.
- Re-insert the power plug.
- The device is now ready to operate again.

7.8 Detach filter mat outlet

	**CAUTION** Damage due to dust release • Operate the device only with the complete filtration system. • Regularly check whether the filter mats have clogged.

	**CAUTION** Damage from dust release when cleaning filter media (cartridges, mats, etc.) in a dismantled state. • Used filter media must never be cleaned through blowing or beating them out! • Always dispose of used filter media packaged in an airtight condition in accordance with local regulations!

A filter mat is installed on the outlet openings in the device cover. This must be checked regularly and replaced where necessary. Perform a visual inspection when you take off the device cover off the device during cleaning, repair or maintenance work. To do this,

- ➢ Turn the device off at the main switch.
- ➢ Disconnect the compressed air supply.
- ➢ Empty the compressed air tank – through manual cleaning, if necessary.
- ➢ Pull the power plug.
- ➢ Unscrew and remove the fastening screws on the device cover.
- ➢ If present → Detach the potential equalisation from the cover.
- ➢ Take off the device cover on the handles.
- ➢ Remove the old filter mat without leaving residue.
- ➢ Fix new filter mat in the device lid in front of the outlet openings.
- ➢ Place the device lid on the device.
- ➢ If present → Attach the potential equalisation to the cover.
- ➢ Insert the fastening screws of the device cover and tighten them.
- ➢ Re-attach the compressed air supply.
- ➢ Re-insert the power plug.
- ➢ The device is now ready to operate again.

	**CAUTION** Risk of crushing fingers when putting the lid on. • Hold the lid by the handles and place on the device. • Do not grab between housing and lid.

- ➢ Place the device lid on the device.
- ➢ If present → Attach the potential equalisation to the cover.
- ➢ Insert the fastening screws of the device cover and tighten them.
- ➢ Re-attach the compressed air supply.
- ➢ Re-insert the power plug.
- ➢ The device is now ready to operate again.

7.9 Clean the device

Clean the device regularly and remove dust deposits, especially on the device cover. To do this:

- Remove the dust build-up with an industrial vacuum cleaner.
- Wipe down thoroughly with a damp disposable cloth.
- **Do not** spray down with a water jet!

7.10 Store the device

If the device is not needed in its location of use for a long time, it must be stored in a dry room. The temperature should not be below 5°C or above 40°C.

Before the device is stored away,

- Clean the spark pre-separator's material pre-separator.
- Empty and clean the spark pre-separator's coarse dust collection drawer.
- Clean the filter cartridges; install new ones if necessary.
- Empty the dust collection container and dispose according to local regulations.
- Clean the device inside and out.
  - With a damp disposable cloth.
  - With an industrial vacuum cleaner.
  - **Do not** clean with a water jet!

7.11 Troubleshooting

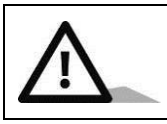
DANGER

High-voltage electric shock when working on the open switch cabinet

- Follow the safety rules for working with electrical devices!
- Secure the device against reactivation with a padlock!
- Render the device voltage-free by pulling the mains connector!
- Any work on the electrical grid and on voltage-conducting parts may only be performed by an electrical specialist.

Fault	Possible cause	Possible solution
Suction too weak	Filter soiled.	Clean filter.
	Throttle is shut too firmly.	Open throttle accordingly.
	Clog due to deposited residue in the suction pipe system	Check the suction pipe system for deposited residue and clogs, and clean it if necessary.
	Cleaning point too low, meaning no cleaning of the filter.	Contact ESTA customer services to adjust the cleaning point.
Automatic cleaning always starts after switching on the device.	Filter worn.	Perform filter change.
	Dust collection container full	Replace / empty dust collection container
Minimum volume flow undershot; optical/acoustic signal is activated.	The resistances in the system are too high	Check suction pipe; if necessary, use pipeline with larger diameter or reduce length of pipeline.
	Cleaning point set up too high.	Contact ESTA customer services to adjust the cleaning point.

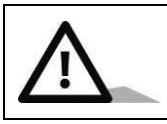
Fault	Possible cause	Possible solution
Motor protection trips.	Motor was switched on/off too often within a short period of time.	Please consult the "Activation operations for motors" table.
Dust leaks and dust trails at air outlet openings.	Filter breakage	Turn the device off immediately. Then clean the entire device and replace the filter elements (filter cartridges, filter mats, etc.) with new ones.
	Filter inadequately attached.	Check installation of filter elements (filter cartridges, filter mats, etc.).
Smoke development or load running noises of the fan.	Imbalance in the fan.	Turn the device off immediately and have ESTA customer service inspect the fan.
	Rotor is scraping on the inlet nozzle or the housing.	Switch off the device immediately and - Check the fan for tension and transport damage - Check the position of the motor to the bearing and the screw connections - Have the fan checked by ESTA customer service
	Noises from the motor.	- Check hub position - Check motor for bearing damage; replace bearings if necessary



CAUTION

Damage from dust leaks and dust trails at air outlet openings.

- Turn the device off at the main switch immediately.



CAUTION

Danger from the fan producing smoke and loud running noises

- Turn the device off at the main switch immediately.

8. Disposal

CAUTION

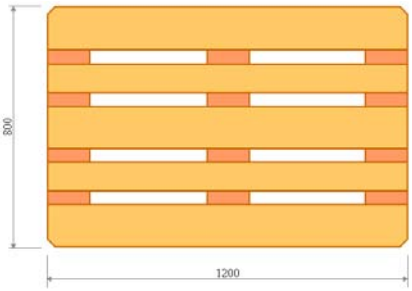
Damage due to dust release

- Emptying and disposal work only to be performed by specialist staff.
- Wear personal protective gear.
  - Respirator mask (particle filter class P3)
  - Protective clothing
  - Protective gloves
- Set up locally filtered forced-air ventilation where the device is being maintained, inspected or cleaned.

8.1 Dispose of the dust collected

Dispose of the tightly sealed dust collection container according to local regulations.

The dust collection containers are designed so that 4 of them fit onto a layer on a euro pallet (1,200 x 800 x 144 mm // as per EN 13698-1). For transport, fasten and secure each layer according to local regulations.



8.2 Dispose of used filter cartridges

CAUTION

Damage from dust release when cleaning filter media (cartridges, mats, etc.) in a dismantled state.

- Used filter media must never be cleaned through blowing or beating them out!
- Always dispose of used filter media packaged in an airtight condition in accordance with local regulations!

In many cases used filter cartridges can also be cleaned through a cleaning process specially developed at ESTA and then reused. We are happy to answer questions. For more information, please contact
ESTA customer service: +49 (0) 7307 804 - 0

8.3 Dispose of the device

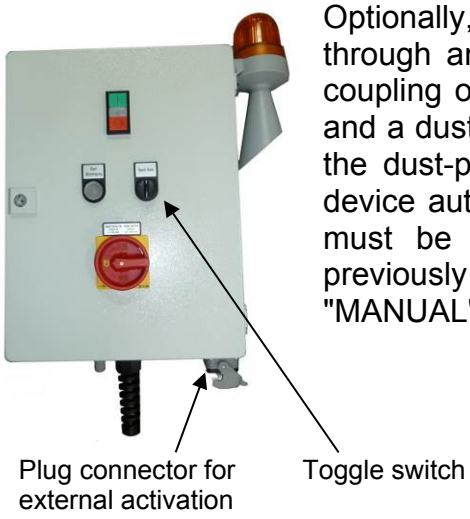
Before disposing of the device

- Take the dust collection container out of the device as described and seal it tightly.
- Remove the filter cartridges as described and package them tightly.
- Take the removable parts (e.g. motor, fan, cover, etc.) out of the device.
- Package the device and the detachable parts as specified by local regulations.
- Dispose of everything according to local regulations.

Due to contamination of the device with toxic dusts, ESTA cannot take the device or individual parts of it back.

9. Optional equipment

9.1 Start-up with potential-free contact



Optionally, the device can be equipped with a start-up through an external potential-free contact. That means a coupling option is established between the suction device and a dust-producing machine connected to it. In this way, the dust-producing machine starts and stops the suction device automatically. The toggle switch on the switch box must be set to "AUTO" for this operating mode. As previously described, the suction device is operated in the "MANUAL" position.

	**DANGER** Risk of high-voltage electric shock when working on the control cabinet • Follow the safety rules for working with electrical devices! • Secure the device against reactivation with a padlock! • Isolate device! Pull the electrical plug! • Any work on the electrical grid and on voltage-conducting parts may only be performed by an electrical specialist.

	**DANGER** Danger from unintentional activation of the device • When working on the device, switch off all devices connected to the potential-free contact at their main switch and secure them with a padlock against reactivation. • Isolate all devices connected to the potential-free contact; e.g. pull all mains connectors! • Any work on the electrical grid and on voltage-conducting parts may only be performed by an electrical specialist.

9.1.1 Installation on the potential-free contact

Pins 1 and 2 of the external, potential-free contact are connected to the plug (packaged with the device). PIN 3 is reserved for the neutral conductor. This is only required when using special ESTA accessories. The potential equalisation is connected to the PIN with the marking for protective ground.
(Please observe the circuit documentation enclosed!)

9.2 Mobile design

The device can come in an optional mobile design. This version of the device comes with a dolly. The dolly is equipped with casters and brake rollers. This allows the device to be moved easily to a different location. This is an advantage when no suitable lifting device (such as a forklift or indoor crane) is available.

	Make sure the floor has adequate and weight capacity and dissipation and can be properly driven on when transporting the device to the set-up location.

	**DANGER** Danger from falling device • Do not walk under heavy loads. • The lifting equipment must be designed for the weight of the device. • If the dolly is already attached, lift the device only for a short time to take it from under the transport pallet, where necessary.

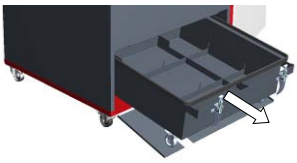
	**CAUTION** Risk of spontaneous movement due to unsuitable floor • Make sure that the floor is even, suitable for traffic and has adequate load capacity!

	**CAUTION** Danger of running over feet due to unintentional movement • Do not park on a sloping floor! • Always engage the brake of the brake rollers when parking the device! • Always wear safety shoes when moving the device! • Before moving, remove all connections To do this: - Pull the power plug. - Disconnect the compressed air on the control cabinet. - Disconnect the pipe or hose line.

A ramp is attached to the dolly which covers the dust collection drawer in a closed state. To move the dust collection drawer out of the device please proceed as follows:

- ➢ Switch off the device at the main switch.
- ➢ Disconnect the compressed air supply directly from the switch cabinet.
- ➢ Empty the compressed air tank – through manual cleaning, if necessary.
- ➢ Tap on the inlet element so that loose adhesions fall into the dust collection container.
- ➢ Wait for approx. 5 minutes so that the dust in the dust collection drawer can settle.

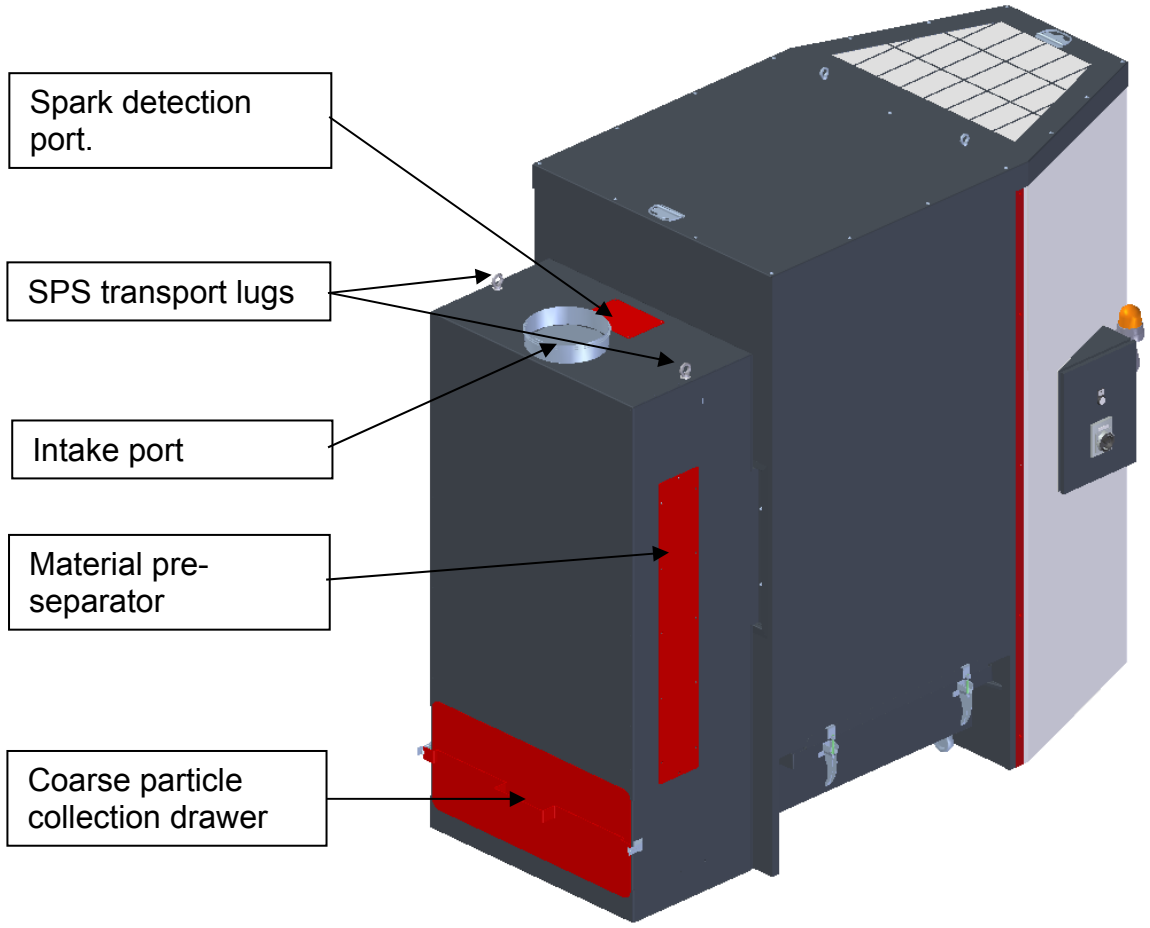
- Then pull the power plug.
- Fold the ramp open carefully and place this on the floor.
- Flip the clamping locks on the dust collection drawer upwards.
- Unhook the clamp from the bar.
- Pull out the drawer slowly and carefully.
- Perform emptying, servicing, cleaning and maintenance work as described.
- Slide the dust collection drawer all the way back into the device.
- Hook the clamp onto the bar.
- Flip the latches downward so that the drawer is firmly locked upward.
- Fold the ramp open again and press on it firmly.
- Re-attach the compressed air supply.
- Re-insert the power plug.
- The device is now ready to operate again.



9.3 Spark pre-separator (SPS)

Optionally the device can be fitted with a spark pre-separator (SPS). (This is no 100% guarantee against filter fire.) This reduces the ingress of coarse particles in the filter chamber, thus reducing the risk of a filter fire from flying sparks. Furthermore, it has an air-channelling function, with which the service life of the filter cartridges is improved.

The spark pre-separator is attached to the device in place of the inlet element. A material pre-separator and a coarse particle collection drawer are integrated in the spark pre-separator. These must be checked and serviced regularly.



9.3.1 Cleaning the spark pre-separator

CAUTION

Fire hazard from deposits on the spark pre-separator

- Regularly remove flammable adhesions and deposits from the spark pre-separator
- Empty flammable and explosive deposits daily from the coarse dust collection drawer.
- Check and clean the material pre-separator on a daily basis when extracting oily and adhesive dusts.
- Prevent spark ingress.

CAUTION

Damage due to dust release

- Maintenance, cleaning, servicing and emptying work only by specialist personnel.
- Wear personal protective gear.
  - Respirator mask (particle filter class P3)
  - Protective clothing
  - Protective gloves
- Set up locally filtered forced-air ventilation where the device is being maintained, inspected or cleaned.

The material pre-separator contained within must be checked regularly for adhesions and cleaned where possible. Depending on the type of application, a weekly check of the external and internal sides of the material pre-separator is necessary. If adhesions are detected in this process, these must be removed.

9.3.2 Checking and cleaning the material pre-separator

To check and clean the material pre-separator, this must be taken out of the spark pre-separator. This process requires 2 people with personal protective gear. Please proceed as follows:

- Switch off the device at the main switch.
- Disconnect the compressed air supply directly from the switch cabinet.
- Empty the compressed air tank – through manual cleaning, if necessary.
- Tap on the spark pre-separator so that loose adhesions fall into the dust collection container.
- Wait for approx. 5 minutes so that the dust in the coarse dust collection drawer can settle.
- Then pull the power plug.
- Release and remove the fastening screws around the inspection cover.
- One user pulls the tab out of the spark pre-separator.
- The second user can now remove the adhesions and deposits with
  - an industrial vacuum cleaner
  - a screwdriver
  - a brush
- Reinsert the tab into the spark pre-separator.
- Position the inspection cover on the opening.
- Fix the inspection cover with the fastening screws.
- Re-attach the compressed air supply.
- Re-insert the power plug.
- The device is now ready to operate again.

9.3.3 Checking and cleaning the coarse dust collection drawer

To check and clean the coarse dust collection drawer, this must be taken out of the spark pre-separator. 1 person wearing personal protective equipment is needed for this operation. Please proceed as follows:

- Switch off the device at the main switch.
- Disconnect the compressed air supply directly from the switch cabinet.
- Empty the compressed air tank – through manual cleaning, if necessary.
- Tap on the spark pre-separator so that loose adhesions fall into the dust collection container.
- Wait for approx. 5 minutes so that the dust in the coarse dust collection drawer can settle.
- Then pull the power plug.
- Open both clamping locks carefully.
- Pull out the drawer carefully with the handle.

CAUTION

Risk of crushing for fingers and feet when pulling out the the coarse dust collection drawer.

- Do not let the coarse dust collection drawer tip over when pulling it out.
- Wear safety shoes.

- Remove the coarse dust collection drawer carefully from the opening and place this down on the floor.
- Extract the coarse dirt out from the coarse dust collection drawer with a suitable industrial vacuum cleaner.
- Re-attach the compressed air supply.
- Re-insert the power plug.
- The device is now ready to operate again.

9.4 Spark detection

The spark pre-separator can optionally be equipped with a spark detection mechanism. This detects potential ignition sparks and outputs a signal. This signal can be processed through a fire-extinguishing device (optional or provided by the customer) and triggers an extinguish process where required.

For more information, please refer to the spark detector manufacturer's documentation.

CAUTION

Danger of signal triggering when opening inspection openings during servicing, cleaning and maintenance work.

- Before opening the inspection openings, it is imperative you deactivate the spark detection system so that no signal is triggered through incident light.
- Always switch the spark detection system back on after closing the inspection openings.

9.4.1 Fire-extinguishing device

Optionally a fire-extinguishing device can be connected to the spark pre-separator's spark detector. This extinguishes any sparks that appear so that these do not contact the filter and set the filter on fire.

For more information, please refer to the fire-extinguishing device manufacturer's documentation.

9.5 Air vents

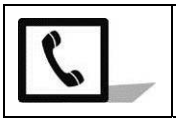
The device can be fitted with an optional discharge air port (ø400) on the cover. To do this it is possible to connect a discharge air line (hose or pipe) to channel the discharge air out into the open, for example.

A suitable sound absorber can also be attached to the air vent. This complements the device and helps with noise reduction.

The outflow must remain free to keep the flow rate constant.

Replacement parts	Item no.	
Sound absorber 600 mm long for discharge air port ø400	15001888	1 piece
Sound absorber 900 mm long for discharge air port ø400	15003146	1 piece
Sound absorber 1200 mm long for discharge air port ø400	15001890	1 piece
Sound absorber arch 90° for discharge air port ø400	15004758	1 piece

Use original ESTA replacement and wear parts!



With the device's model information and serial number, request the replacement parts you need from
ESTA replacement part service: +49 (0) 7307 804 - 0

9.6 Alternative filter cartridges

You have the option of using alternative filter cartridges. Always check the settings for monitoring the minimum volume flow when changing the type of cartridge.

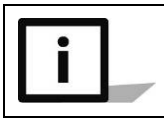
Replacement parts	Item no.	Filter area	Pre-coatable	Minimum volume flow monitoring
Pre-coatable filter cartridge	30008669 1 piece	14 m² / piece	X	Standard (See page 42)
Filter cartridge PTFE	01001019 1 piece	14 m² / piece	--	See pages 60 and 61
Filter cartridge Nanofilter, flame-retarding	01000535 1 piece	20 m² / piece	--	Standard (See page 42)

Filter cartridges that are pre-coatable must be pre-coated. A pre-coating agent is enclosed with this filter cartridge for this purpose.

Use original ESTA replacement and wear parts!

With the device's model information and serial number, request the replacement parts you need from
ESTA replacement part service: +49 (0) 7307 804 - 0

9.6.1 Pre-coating when installing new pre-coatable filter cartridges



It is imperative the pre-coating process is performed before the filter cartridges are loaded with dust. Do not suck in any foreign material prior to and during the pre-coating process.

CAUTION

Damage due to dust release

- Pre-coating process only to be performed by specialist staff.
- Wear personal protective gear.
  - Respirator mask (particle filter class P3)
  - Protective clothing
  - Protective gloves
- Keep device covers closed.
- Keep the work area around the device clear during the pre-coating process.

Insert the filter aid (pre-coating powder) into the device prior to the first start-up and after the installation of new pre-coatable filter cartridges. A filter support layer forms on the surface of the new filter cartridges and prevents the ingress of dust particles in the filter cartridge. As a result the level of the device's effectiveness is increased, incrustations are reduced , cleaning is improved and the filter cartridge's service life is thus also increased.

The pre-coating process is as follows:

- Supply pre-coating powder
- Disconnect the compressed air on the control cabinet for this process.
- Switch on the device at the main switch.
- Feed the pre-coating powder to the device via the intake port.
- Switch the device off again after around 15–30 minutes.
- The pre-coating process is complete.
- Re-connect the compressed air on the control cabinet of the device.

9.6.2 Minimum volume flow monitoring MOBEX F-40 W3

	If the vacuum monitor is changed, the pipe diameter increased or the pipeline lengthened, it cannot be guaranteed that no dust deposits will collect in the pipeline. Observe the minimum air speed for your application of 12m/s. Regularly check the pipeline for dust deposits.

The values in the following table apply as reference values for the type of cartridge specified.

	Intake port ø	[mm]	180	200	224
Filter cartridge art. no.: 010001019	Nominal volume flow at approx. **17m/s**	[m³/h]	1,560	1,920	2,410
	Guideline for pressure monitor B1	[Pa]	2,850	2,300	1,600
	Minimum volume flow at approx. **12m/s**	[m³/h]	1,100	1,360	1,700
	Guideline for pressure monitor B2	[Pa]	3,200	2,950	2,900

Here external losses of pressure that may occur through the connected pipeline are not considered. To calculate the setting value, where necessary, proceed as follows:

Setting value of pressure monitor = standard value of pressure monitor – external pressure loss

9.6.3 Minimum volume flow monitoring MOBEX F-60 W3

	If the vacuum monitor is changed, the pipe diameter increased or the pipeline lengthened, it cannot be guaranteed that no dust deposits will collect in the pipeline. Observe the minimum air speed for your application of 12m/s. Regularly check the pipeline for dust deposits.

The values in the following table are reference values:

	Intake port ø	[mm]	224	250	280
Filter cartridge art. no.: 010001019	Nominal volume flow at approx. **17m/s**	[m³/h]	2,410	3,000	3,770
	Guideline for pressure monitor B1	[Pa]	2,800	2,500	1,900
	Minimum volume flow at approx. **12m/s**	[m³/h]	1,700	2,120	2,660
	Guideline for pressure monitor B2	[Pa]	3,300	3,200	2,900

Here external losses of pressure that may occur through the connected pipeline are not considered. To calculate the setting value, where necessary, proceed as follows:

Setting value of pressure monitor = standard value of pressure monitor – external pressure loss

10. EC Declaration of Conformity

Name of manufacturer:	ESTA Apparatebau GmbH & Co. KG
Address of manufacturer	Gotenstraße 2 - 6 89250 Senden
Person in charge of documentation:	Ramona Pflum Gotenstraße 2 - 6 89250 Senden

We hereby declare that the design of the machine

Machine:	Dust extractor for the collection, transport and separation of dry, free-flowing dusts of dust class "M" and welding fumes of high-alloy steels.
Series:	MOBEX
Model:	**MOBEX F-40 W3** **MOBEX F-60 W3** **and variations**

conforms to the following regulations:

2006/42/EC	EC Machine Directive
2004/108/EC	EC Electromagnetic Compatibility Directive
2006/94/EC	EC Low-Voltage Directive

Reconciled norms used:

DIN EN ISO 12100:2011-03	Safety of Machinery – Basic concepts, general principles for design
DIN EN ISO 13857:2008-06	Safety of Machinery – Safety distances to prevent danger zones from being reached by upper and lower limbs
DIN EN 349:2008-09	Safety of machinery; minimum distances for preventing body parts from being crushed
DIN EN 60335-1:2012-10	Safety of electrical appliances for household and similar use - general requirements
DIN EN 60335-2-69:2012-08	Safety of electrical appliances for household and similar use – Special requirements for dust and water suction systems. including power brushes for commercial use
DIN EN 61000-6-1:2007-10	EMC generic standard - Immunity for residential, commercial and light-industrial environments
DIN EN 61000-6-2:2006-03	EMC generic standard – Immunity for industrial environments
DIN EN 61000-6-3:2011-09	EMC generic standard - Interference for residential, commercial and light-industrial environments
DIN EN 61000-6-4:2011-09	EMC generic standard - Interference for industrial environments
DIN EN 61000-3-2:2010-03	EMC limits – Limits for harmonic current emissions (device input currents ≤16 A per cable)
DIN EN 61000-3-3:2009-06	EMC limits – limitation of voltage changes, voltage fluctuations and flickers in low-voltage public supply systems for devices and equipment with a rated current ≤16 A per cable, not subject to a special connection
DIN EN ISO 15012-1:2008-07	Health and safety in welding and allied processes. Equipment for collecting and separating welding fumes – Requirements for separation efficiency and testing and classifying separation efficiency

National norms and technical specifications used:

VDI 3677	Filtering separators

Senden, 30/04/2014

Dr Peter Kurtz
Managing Director

Notes

ESTA Apparatebau GmbH & Co. KG
Gotenstraße 2 - 6
89250 Senden / Ay

Tel.: +49 (0) 7307 804 - 0
Fax: +49 (0) 7307 804 - 500
Email: info@esta.com

www.esta.com

Notes

ESTA Apparatebau GmbH & Co. KG
Gotenstraße 2 - 6
89250 Senden / Ay

Tel.: +49 (0) 7307 804 - 0
Fax: +49 (0) 7307 804 - 500
Email: info@esta.com

www.esta.com

ESTA Apparatebau GmbH & Co. KG
Gotenstraße 2 - 6
89250 Senden / Ay

Tel.: +49 (0) 7307 804 - 0
Fax: +49 (0) 7307 804 - 500
E-Mail: info@esta.com

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