

TRANSLATION OF THE ORIGINAL INSTALLATION INSTRUCTION

Oil mist separator

OILMAC 3000



Welcome to the wide world of extraction technology

With the purchase of an ESTA product you have chosen a quality product which has been designed to the current state of the art.

ESTA products provide clean air to the work place and consequently guarantee better quality, longer machine running times and above all, provide healthier working conditions.

We will be pleased to answer at any time your questions on any aspect of extraction technology.

Your team from

ESTA Apparatebau GmbH & Co. KG

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The information in the document must be followed during operation in order to avoid faults or damage. The operator must therefore make it available to all relevant maintenance and operating staff. Subject to alteration.

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The warranty can only be accepted if the following conditions are met:

- Professional transport
- Professional assembly, commissioning and operation using these operating instructions.
- Verifiable compliance with the prescribed maintenance intervals.
- Operation of the product with conveyed media having the specified chemical and physical properties.
- Immediate reporting of damage to the manufacturer.
- Exclusive use of genuine replacement parts.
- Structural modifications to the original condition only to be carried out with the agreement and written approval of the manufacturer.

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1 General instructions

1.1 General notes prior to use

Before using the product, it must be ensured that all persons about to use the product or perform maintenance work on it,

- Have received all relevant information, instructions and training courses for using the product and have understood them.
- Are able to perform or fulfil their tasks according to the law and the current operating manual.

1.2 Legal information

The product's design and construction meets the directives and standards of the Declaration of Incorporation (According to MRL 2006/42/EC, Annex II Par 1 B) to minimise any possible potential risks originating from the product. Potential risks can only be minimised when the user or its authorised representative adheres to the additional, relevant standards for a product ready to install.

1.3 Target group of the document

This document is intended for

- Operators trained on the product who are familiar with the extraction process.
- Trained assembly and maintenance personnel.
- Trained electrical specialists

1.4 How to read this document

This document is a component of the product it describes. Keep the instructions easily accessible at the place where the device is being used, so that they can be seen by the staff at all times.

All persons must carefully read this document before any work on the product takes place (commissioning, assembly, maintenance, etc.). Prerequisite for safe work and trouble-free handling is that all relevant information, instructions and training for the use of the product and substances it is used for have been obtained and understood. The tasks must be performed or fulfilled according to the law and in accordance with this document.

Please follow the safety and warning instructions in the document and on the product. All plant, operating, and work instructions of the owner-operator apply in addition to this document.

The document also contains graphical examples along with the descriptions. For this reason, the equipment may differ somewhat from the descriptions and representations.

Highlighting in the text

In order to simplify the legibility and overview, various paragraphs and information are highlighted by distinguishing elements.

The symbols have the following meaning:

- 1st level list
 - 2nd level list
- ✓ Handling requirement
- 1. Handling step
 - ⇒ Intermediate result
- ⇒ Result of the entire handling sequence



Information on the target group for whom the following instructions are intended.

1.5 Form and significance of warning information

DANGER



High risk

indicates an imminent hazard. If this is not averted, death or very serious injury will result.

WARNING



Medium risk

indicates the possibility of an imminent hazard. If this is not averted, death or very serious injury may result.

CAUTION



Low risk

indicates the possibility of an imminent hazard. If this is not averted, slight or minimal injury may result.

NOTICE

























Material damage

Foreseeable material damage for the product and environment with a failure to comply with the specified measures.

This warning is displayed when there is a threat of danger or damage. This represents actions which can cause a risk of damage.

Warnings are indicated by a symbol or signal word. The warning includes information on the type and source of the hazard, the consequences if it occurs, and actions for averting it.

1.6 Explanation of symbols

| | | | | |
|----------------------------|---|-------------------------------------|--|--|
| Warning notices |  | General warning signs |  | Electric voltage |
| |  | Hearing damage |  | Toxic dusts |
| |  | Danger of crushing Hand injuries |  | Falling/tipping hazard |
| |  | |  | |
| |  | Suspended load |  | Automatic start-up |
| Prohibition symbols |  | General prohibition |  | Read the manual |
| |  | Wear ear defenders |  | Wear safety goggles |
| |  | Wear safety footwear |  | Wear a hard hat |
| |  | Wear gloves |  | Use breathing equipment |
| |  | Wear protective clothing |  | Enable before maintenance or repair work |
| |  | Further information |  | Reference to target group |
| | | | | |

2 Product identification

2.1 Symbols and labels used



The ESTA service label indicates when and by whom the last service was carried out by the ESTA maintenance service. It also lists when the next service by the ESTA maintenance service is scheduled.

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

Seriennr. Baujahr 20
 Volt 3N- 50 Hz kW Amp.
 Lpa [dBA]: Vorsich. IP IE Gewicht:

Product name plate (sample name plate)

2.2 Intended use

The product was designed for use at the following workstations:

- Group work station
- Rooms with several work stations

Coordinate any deviating applications with the manufacturer to ensure that the functioning of the product is not compromised.

The product has been manufactured based on state-of-the-art technology and according to recognised safety regulations and must be used appropriately and as follows:

- For commercial use, such as in industrial enterprises and workshops.
- For the extraction of non-explosive oil and emulsion mist
- with afterfilter stage H13 approved for air recirculation operation.
- For the extraction of oily dust
- for the extraction of oil and emulsion mist.
- For the extraction of aerosols (e.g. cooling lubricants), which arise during the mechanical processing of metallic parts.

2.3 Improper use

The product may only be used within the scope of the technical data specified by ESTA. Uses that exceed the specifications in “Intended Use” are deemed to be inappropriate. The manufacturer is in this case not liable for resulting damage.

Examples of inappropriate use are:

- Extraction of combustible gases, dust, vapours or mist
- Using or keeping in the open air or under wet conditions
- Use in dust or gas EXPLOSION areas
- Extraction of highly flammable or glowing particles
- Extraction of process air outside the specified temperature range, see Ambient conditions for the product [▶ 22]
- Extraction of corrosive gases
- Installation in paint shops
- Installation in food operations
- For separating dry, toxic dusts, non-flammable dusts with all work-place threshold values including carcinogenic hazardous materials

2.4 Foreseeable misuse

The use of the product in an unintended way, but which can arise from easily foreseeable human behaviour.

This includes for example:

- Installing outdoors
- Installation or operation in explosive dust and gas environments
- Unauthorised modifications to the product
- Intake of glowing embers such as, e.g., cigarettes
- Start-up of the product despite defects detected on the product or attached parts (e.g., pipeline)
- Intake of items not suitable for suction (e.g., mobile phone, tool, glove, screws, etc.)
- Closing of intake opening

2.5 Warranty terms

ESTA accepts no liability for direct damage and consequential damage to products or for personal injuries when the product is not used for its intended purpose. The operating company must prove that the fault was not caused by inappropriate installation, assembly, maintenance or use of the product.

For your own safety, use only genuine replacement parts and accessories. ESTA accepts no liability for any resulting damage if other products are used.

2.6 Important information on the product

Responsibility must be clearly stipulated for the following tasks:

- Transport
- Assembly
- Commissioning
- Operation
- Maintenance and repair
- Cleaning
- Decommissioning
- Disposal

3 Safety

3.1 Hazard prevention

DANGER



Electric shock from high voltage

Severe injury including death possible

- ▶ Any work on the electrical grid and on live components may only be performed by an electrician.
- ▶ Follow the safety rules for working with electrical products.
- ▶ Shut down the product or any live components before working on them and secure them against reactivation (e.g. padlock).
- ▶ Establish electrical connections of the components according to the manufacturer's specifications.
- ▶ Protect the power supply cables against damage and dimension them according to the power uptake of the drive motor.
- ▶ Perform the electrical installation and connection of the drive motor according to the regionally applicable regulations (e.g. VDE), the legal standards of the country and the rules of the regional power company.
- ▶ If damage is found to the product or power cable, it must not be put into operation and the product must be secured against being switched on again. (Padlock on main switch)
- ▶ Have any damaged cable replaced by specialised staff.
- ▶ Do not clean electrical components with a water jet.
- ▶ Check existing protective devices and adjust them to the working process of the product.

DANGER



Danger of fire due to sparks and glowing particles

Severe injury including death possible

- ▶ Keep combustible, flammable materials away from the work area.
- ▶ Never run away if clothing catches fire. Extinguish flames by rolling on the ground or by smothering them with blankets.
- ▶ If there is a fire, alert the fire department immediately, and contain the fire by appropriate means.
- ▶ Keep a suitable extinguishing agent (not included in scope of delivery) near the product before start-up and during operation.



DANGER

Risk of falling and tripping

Danger to life from falling objects or loads

- ▶ Do not stand under suspended loads.
- ▶ Secure the assembly area and mark it out (e.g., with barrier tape).
- ▶ Always lift the product vertically during loading and assembly work.
- ▶ Only transport the product with suitable, approved means of lifting and transport.
- ▶ Keep a sufficient distance from the product while it is being installed. Distance at least 1.5 times the height of the product.
- ▶ Wear personal protective equipment.

WARNING



Danger of crushing due to loose or open covers

Injuries to the limbs

- ▶ Keep covers tightly closed during operation.
- ▶ Check regularly that fastening screws and component connections are secure.
- ▶ Only start up the product after the assembly is complete and correct.

CAUTION



Dust deposits in the pipe system

Short-term impairment of the respiratory organs during inhalation

- ▶ Check the connected piping system regularly for dust deposits.
- ▶ Observe the minimum air speed required for use and the resulting minimum airflow volume.



⚠ CAUTION

Harmful separated substances

Effects on respiration, organs, skin and eyes

- ▶ Maintenance, cleaning, repair, and emptying work may only be completed by expert personnel.
- ▶ Ensure that the siphon connection for the discharge of residues is connected.
- ▶ Regularly check the filter elements for clogging.
- ▶ Pay attention to the arrangement and installation location of the filters.
- ▶ Dispose of used filter elements in air-tight-sealed disposal bags in accordance with regional regulations.

3.2 Workstation ventilation



The provisions of DGUV rule 109-002 must be complied with.

During extraction, the volume flow returned from the product into the room should be no more than 50% of the supply air. With open room ventilation, supply air flow should be assumed as equal to 1x the room volume every hour. This means that the rate of air replacement must be 1/h.

Calculation Supply air flow [m³/h] = room volume [m³] x air replacement rate [1/h]

Example:

When the product 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 x 3 m ceiling height).

3.3 Product safety

The following points must be considered to avoid injuries and other risks due to inappropriate use and operation of the product:
















- Assembly, electrical connection, maintenance, initial operation, cleaning, repair and other work in connection with the product may only be performed by trained specialists.
- The product must be checked for faulty or damaged supply lines (cables, pipe systems, etc.), connections and open system parts (inspection door, discharge opening) every time before starting up. Do not use the product in such cases and immediately notify the maintenance personnel responsible.
- Ensure before any work is performed on the product or before inspection doors are opened that the product is disconnected from the power supply and secured against unauthorised reactivation.
- Connect the product to the electrical power supply properly and in precise compliance with the safety instructions and use it exclusively in accordance with the specifications.

3.4 Qualified personnel

Trained personnel Trained personnel are those who have been instructed in the correct handling of the product and who are aware of the risks presented by improper use. Personnel must receive instruction on safety equipment. Knowledge of this manual is mandatory.

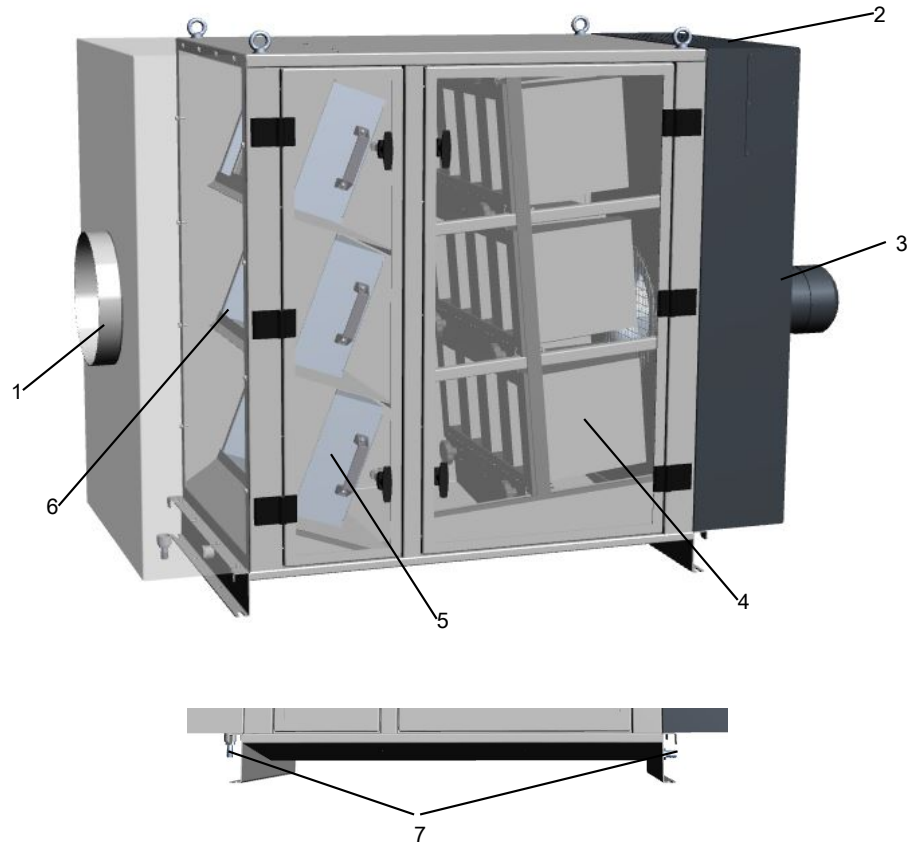
Qualified semi-skilled technicians An employee with appropriate technical training, knowledge and experience who is able to identify and avoid hazards. Knowledge of this manual is mandatory.

Trained skilled worker Qualified technician in a qualified profession. Knowledge of this manual is mandatory.

| Target group | Task | Qualification | Protective equipment |
|---------------------------------|--|------------------------------------|--|
| Transport personnel | Transport Set-up | Qualified semi-skilled technicians |   |
| Installation personnel | Installation | Trained skilled worker |  |
| Commissioning personnel | Commissioning | Trained skilled worker |   |
| Operating personnel | Operation | Qualified semi-skilled technicians |     |
| Maintenance personnel | Inspection Maintenance Repair work | Trained skilled worker |     |
| Maintenance, cleaning personnel | Maintenance Clean | Trained personnel |   |

4 Structure and function

4.1 Illustration



| | |
|------------------------------------|----------------------------|
| 1 Connection for air inlet raw gas | 2 Outlet opening clean gas |
| 3 Fan unit | 4 Afterfilter cartridge |
| 5 Main separator oil filter | 6 Pre-filter metal mesh |
| 7 Siphon connection outlet | |

4.2 Functional description

- Principles of the procedure** With the vacuum generated by the fan, air containing aerosol is extracted through the connected suction hose. The replaceable filters separate the aerosol residue safely. The purified air is returned to the atmosphere via outlet openings or an exhaust air line.
- The housing is designed so that separated, fluid aerosol residue is drained via a siphon connection.
- Drive** The product is equipped with a three-phase motor which drives a radial fan. The product is supplied with or disconnected from the requisite power via a main switch of the upstream extraction system.
- Filter unit** The filter unit is divided into 3 filter stages which are provided with different filter cartridges for sedimentation of aerosol particles in the air.
- Pre-separate filter stage.** The majority of the coarse and solid particles are separated with the filter cartridge made of wear-resistant, washable metal mesh.
- Main separator filter stage.** The multi-layer oil filter enables sedimentation of separated aerosol particles. These aerosol particles collect in the housing interior and are drained via siphon connections.
- Afterfilter filter stage.** With a high separating performance by the HEPA H-13 filter in air recirculation operation or an F9 filter for air extraction operation, residual aerosols also separated before the air flows outwards through the outlet opening.

5 Transport and installation



TARGET GROUP: Transport personnel

5.1 Transport



! DANGER

Risk of falling and tripping

Danger to life from falling objects or loads

- ▶ Do not stand under suspended loads.
- ▶ Secure the assembly area and mark it out (e.g., with barrier tape).
- ▶ Always lift the product vertically during loading and assembly work.
- ▶ Only transport the product with suitable, approved means of lifting and transport.
- ▶ Keep a sufficient distance from the product while it is being installed. Distance at least 1.5 times the height of the product.
- ▶ Wear personal protective equipment.

! WARNING



Crushing hazard when setting the product down

Injuries to the hands and feet

- ▶ Secure the product against tipping and falling during transport.
- ▶ Set the product down carefully and cautiously during set-up.
- ▶ Wear work gloves and safety shoes.

NOTICE



Material damage due to improper transport

Damage to the housing, lines and product components

- ▶ Do not push or pull the product across the floor if it does not have any rollers.
- ▶ Pay attention to any protruding components when setting down the product.
- ▶ Note the centre of gravity (which is not in the centre) when setting down the product.
- ▶ Make sure that the surface can be driven on, is level and sufficiently load bearing.

The product is delivered fastened to a pallet. After the protective covers and the floor fixing have been removed, the device can be lifted and transported using suitable lifting equipment.

- Remove the packaging and check the product for damage and completeness
- The product must not be put into operation if there is damage, or if the delivery is incomplete. Contact ESTA in such cases
- Any foreign objects inside the product must be removed before start-up

5.2 Set-up

NOTICE



Damage to property and the environment

Observe minimum load-bearing capacity of the substrate

- ▶ Only install the product on a level, firm substrate with sufficient load-bearing capacity.
- ▶ Products that are stationary during use must be fastened to the floor with anchors or another appropriate means of fastening.
- ▶ Products that are mobile during use must be secured with the parking brake.

During set-up, always consider the required minimum distances from the product to ceilings and walls.

Space requirements

| | |
|--------------------------|-----|
| Top side (mm) | 800 |
| Raw gas air outlet (mm) | 800 |
| Clean gas air inlet (mm) | 800 |
| Side walls (mm) | 800 |



1. Lift the product from the pallet using a forklift at the positions provided and set it down immediately next to the pallet.

or:

1. Hang the product using sling gear (e.g. a lifting belt, round sling) at the positions provided, lift it and set it down immediately next to the pallet.
 - ⇒ Pay attention to the weight of the product, its centre of gravity and the permissible suspension angle of 60° during all transport work.
2. Use the rollers on the product or mobile base frame for further transport to its installation location.
3. Install the product horizontally on a rigid, vibration-insulated surface.
4. Bolt the product securely with the processing machine.

6 Commissioning



TARGET GROUP: Commissioning personnel

DANGER



Electric shock from high voltage

Severe injury including death possible

- ▶ Any work on the electrical grid and on live components may only be performed by an electrician.
- ▶ Follow the safety rules for working with electrical products.
- ▶ Shut down the product or any live components before working on them and secure them against reactivation (e.g. padlock).
- ▶ Establish electrical connections of the components according to the manufacturer's specifications.
- ▶ Protect the power supply cables against damage and dimension them according to the power uptake of the drive motor.
- ▶ Perform the electrical installation and connection of the drive motor according to the regionally applicable regulations (e.g. VDE), the legal standards of the country and the rules of the regional power company.
- ▶ If damage is found to the product or power cable, it must not be put into operation and the product must be secured against being switched on again. (Padlock on main switch)
- ▶ Have any damaged cable replaced by specialised staff.
- ▶ Do not clean electrical components with a water jet.
- ▶ Check existing protective devices and adjust them to the working process of the product.

WARNING



Danger of crushing due to loose or open covers

Injuries to the limbs

- ▶ Keep covers tightly closed during operation.
- ▶ Check regularly that fastening screws and component connections are secure.
- ▶ Only start up the product after the assembly is complete and correct.

CAUTION



Risk of injury when the fan impeller starts up

Risk of crushing limbs

- ▶ Only work on the drive motor / fan impeller when the system is switched off.



NOTICE

Material damage

- ▶ Inspect the product before each use for faulty, damaged or missing components.
- ▶ If there is damage, do not use the product and immediately notify the maintenance personnel responsible.

6.1 Ambient conditions for the product

| | | |
|---------------------|------|------------|
| Ambient temperature | [°C] | +5 ≤ ≥ +40 |
| Humidity | [%] | 30 - 70 |

6.2 Pipeline connection

CAUTION



Dust deposits in the pipe system

Short-term impairment of the respiratory organs during inhalation

- ▶ Check the connected piping system regularly for dust deposits.
- ▶ Observe the minimum air speed required for use and the resulting minimum airflow volume.

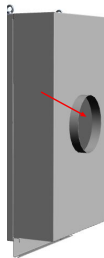
Air inlet (raw gas)

1. Connect a pipeline or hose pipe to the intake port of the product.

⇒ Product is connected to the suction line.

Use as a suction line:

- Pipe sealed with longitudinal weld seam, which conforms to national regulations for the application
- approved adapters in case of small diameters at the port.



6.3 Electrical connection

CAUTION



Starting up the drive motor / fan impeller when the extraction and outlet pipe are not correctly connected

Risk of crushing limbs

- ▶ Check correct connection of the intake and outlet pipe.

NOTICE



Observe type plate

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

The product is connected according to the information on its type plate.

The connection to the in-house power supply is established at the installation location.



The product power supply requires connection of a customer-side cable connection with a slow-blow fuse and lockable motor protection switch for the product. Connection to the building's power supply or an upstream machine is made at the installation location.

If the product is operated by an upstream control unit, it must be configured such that the product starts up before the processing machine starts and when the editing process ends, the product must continue running.

When determining the cable length, note that the fan unit needs to be swung open for maintenance, cleaning and servicing work.

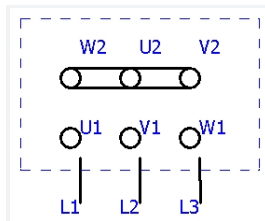
Establishing cable connection

1. Remove the outlet element (fan unit).
2. Carry out the connection and arrangement of the jumpers according to the circuit diagram.
3. Open the required cable entry openings on the terminal box.
4. Carry out the connection and arrangement of the jumpers according to the circuit diagram.
5. Connect the protective conductor to the terminal with the adjacent symbol.



- Electrical connection**
1. Air clearances between bare, live parts themselves and earth: ≥ 5.5 mm [0.217"] (at a rated voltage of $UN \leq 690V$).
 2. Install terminals with jumpers (e.g. according to DIN 46282) in the conductors,
 - ⇒ which must have approximately the same clamping height results on both sides of the bar. Individual conductors must therefore be bent into a U-shape for connection or be connected with a cable lug (DIN 46234).
 3. Check the connection of protruding wires and correct it as necessary.
- ⇒ Electrical connection has been established.

Circuit diagram



1 ~ => motor with capacitor and thermostatic switch

Cable colours:

W => blue or grey

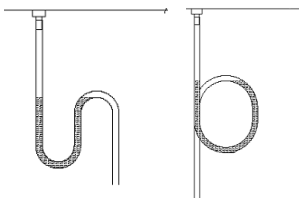
V => black

U => brown

6.4 Siphon hose connection



The connections of the siphon line are located on the underside of the product. The aerosol residue that has accumulated inside the housing is drained through these lines. In order to ensure that the aerosol residue drained and false air intake is prevented, the siphon line must always be filled with aerosol residue.



- The hose included in the scope of supply with sleeve ($\varnothing 9mm$) and corresponding hose clamps are used for connection of the siphon line (3/4").
- Install the siphon line so that it is descending. The formation of fluid pockets is thereby avoided.
- The siphon line must be filled so that fluid emerges from the hose. Aerosol residue fill quantity as shown in the illustration of the circular and U-shaped arcs.

6.5 Monitoring rotation direction

DANGER



Electric shock from high voltage

Severe injury including death possible

- ▶ Any work on the electrical grid and on live components may only be performed by an electrician.
- ▶ Follow the safety rules for working on electrical products.

NOTICE



Possible material damage caused by incorrect fan rotation direction

- ✓ If the rotation direction is incorrect, the product heats up unacceptably.
- ✓ The volume increases, the airflow volume falls, and the product's suction performance deteriorates.
- ✓ Damage to the product cannot be ruled out.
- ▶ After first switching on the product, the fan rotor's direction of rotation must be checked.

Change rotation direction

1. Have the phases of the phase reversing connector transposed by an electrical technician.
 2. Compare the rotation speed of the fan impeller with the rotation direction arrow on the housing.
- ⇒ The product is ready for operation.

6.6 Activation operations for motors

| Motor output kW | Power-ups / h |
|-----------------|--|
| 1 - 4 | < 8 starts |
| 4 - 7.5 | < 6 starts |
| 7.5 - 15 | < 4 starts |
| 15 - 30 | < 3 starts |
| From 30 | Electronically controlled overrun time |

7 Operation



TARGET GROUP: Operating personnel

7.1 Operating the product

- Switch on the product**
1. Switch on the product.
 2. Start the operating process.
- ⇒ The product is in operation.

- Switch product off**
1. End the operating process.
 2. Switch product off.
- ⇒ The product is not in operation.

8 Servicing and maintenance



TARGET GROUP: Maintenance and cleaning staff



⚠ CAUTION

Harmful separated substances

Effects on respiration, organs, skin and eyes

- ▶ Maintenance, cleaning, repair, and emptying work may only be completed by expert personnel.
- ▶ Ensure that the siphon connection for the discharge of residues is connected.
- ▶ Regularly check the filter elements for clogging.
- ▶ Pay attention to the arrangement and installation location of the filters.
- ▶ Dispose of used filter elements in air-tight-sealed disposal bags in accordance with regional regulations.



All 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.

All maintenance tasks should be carefully performed within the given time-scales. Preventative maintenance of the components prolongs the life of the product. So does regular cleaning and preventative exchange of wearing parts.

Safety devices for prevention or removal of hazards (e.g. according to the 2009/104/EC work equipment user devices and TRGS 560) must be regularly maintained and inspected by an expert for safe and appropriate operation.

Shut down the product immediately if malfunctions and defects are discovered and notify the responsible maintenance and repair staff.

8.1 Operating and auxiliary materials



NOTICE

Material damage caused by aggressive cleaning agents and incorrect cleaning methods

Damage to seals, surfaces or plastics on the product

- ▶ Do not use any aggressive cleaning agents which might attack seals, surfaces or plastics.
- ▶ Use damp disposable cloths for cleaning.
- ▶ Use industrial vacuum cleaners approved for the application.
- ▶ Do not use any sharp objects or cleaning material with a rough surface.



NOTICE

Cleaning with pressure washers

Damage to the coating and deformation of the product

- ▶ Observe a minimum distance of 300 mm when cleaning with a pressure washer.
- ▶ Adjust a water jet with moderate pressure base on the object and properties of the surface.
- ▶ During the process, ensure non-abrasive cleaning.

Cleaning agents The following are suitable as cleaning agents for metal parts:

- Mild detergent
- Damp disposable cloths
- Warm water
- Liposoluble cleaning agents

Pressure washer The following cleaning methods are suitable for aerosol residue and oil, stubborn soiling on surfaces:

- Pressure washer

8.2 Maintenance table

NOTICE



Adjusting the maintenance interval to the operating time

The inspection and maintenance intervals specified here refer to normal application conditions.

In difficult conditions, e.g. increased separation volume and extended daily operating hours, the specified intervals must be shortened.

Maintenance table

| | | daily | monthly | annually | as required |
|-----|---------------------------|-------|---------|----------|-------------|
| 8.3 | Visual inspection | 1 | | | |
| 8.4 | Functional check | | 1 | | |
| 8.5 | Check the filter elements | | 1 | | |
| 8.6 | Change filter | | 1 | | |
| 8.7 | Siphon hose maintenance | | 1 | | |
| 8.6 | Change filter | | | | 1 |
| 8.8 | Cleaning the product | | | | 1 |

1 - Maintenance personnel

8.3 Visual inspection

Parts and components on the product exhibiting damage must be replaced immediately with new original ESTA parts.

- Daily**
- Check the complete product and its parts for damage
 - Check the product and its parts for dirt and clean as necessary, see Cleaning the product [▶ 35]
 - Discharge and deposits of media (e.g. aerosol residue) on interfaces and outlet openings.
 - Check for electrical cables for damage such as open cable insulation, crushing, visible wiring or heavy soiling.
 - Fan impeller noise / check drive motor start-up
 - non-circular running
 - flapping
 - grinding
 - pounding
1. Switch the product off immediately if the noise indicates an unusual fault of the fan impeller.
 2. Determine and eliminate the cause of the fault or initiate its removal by a specialist, e.g. have the drive motor and / or fan impeller replaced by a specialist.
- Annually**
- Check the sealing of the complete product
 - Have the fan checked by the manufacturer for:
 - Proper fitting of the fixing screws and connections to the product
 - Cracks of the housing / sealing

8.4 Functional check

- Monthly**
- Check all moving parts for firm seating
 - Check hoses and connections for sealing
 - Check operating and display elements (buttons, switches) for function
 - Check the volume flow control for function:
 - To check, shut the product's air inlet. Starts the automatic cleaning, the equipment is in order
 - Check the mains connection line for damage and replace damaged parts as necessary
 - Check the safety devices (motor protection relay, grounding resistance, etc.) and initiate adjustments by service personnel
 - Tighten externally accessible screw connections
 - Check optionally available equipment according to the manufacturer's instructions
- Annually**
- Check all electrical devices in accordance with VDE 0701 - 0702, VDE 0600
 - Contact ESTA maintenance service to check the volume flow, vacuum and current consumption

8.5 Check the filter elements

- Condition of the filter elements
- Damage and level of soiling
- Soiling in the interior between the filter elements and the outlet

8.6 Change filter

After a longer period of operation, the pores of the filter cassette slowly become saturated due to the filtering of air containing aerosols. The filter cassette must be replaced. Carry out this activity preferably during the non-operational phase with 2 trained persons wearing PPE.

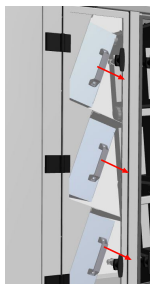
Metal mesh filters must be cleaned in the specified intervals in order to ensure that the fine metal mesh remains permeable. Use liposoluble cleaning agents and warm water to remove oil, aerosol residue and resinous oil. Cleaning with a pressure washer is recommended in observance of a minimum distance of 3m.

8.6.1 Change main separator oil filter and clean metal mesh

- Remove oil filter**
- ✓ Perform a filter change while the plant is not in operation
 - ✓ Prepare a suitable container and disposal sack for the consumed filter cartridges
 - ✓ Switch off the product.



1. Open the inspection doors at the pre-separator filter unit handles.

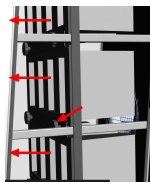
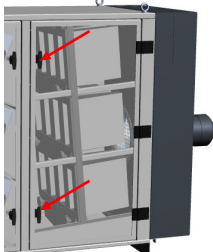


2. Pull the oil filter and metal mesh out of the housing.
3. Remove the metal mesh from the bracket.
4. Place the metal mesh in a suitable container for cleaning.
5. Clean the metal mesh with a suitable liposoluble cleaning agent and warm water, then allow it to dry.
 - ⇒ The metal mesh is now clean.
6. Seal saturated oil filters in a disposal sack and dispose of the sack in accordance with local regulations.

- Install oil filter**
1. Insert a new oil filter in the bracket of the housing.
 2. Position the metal mesh in front of the oil filter
 3. Fit the housing lid and close the sash locks again.
 4. Close the inspection doors at the pre-separator filter unit handles.
- ⇒ The main separator oil filter is now replaced and the metal mesh is clean.

8.6.2 Replace afterfilter

Remove afterfilter



- ✓ Perform a filter change while the plant is not in operation.
 - ✓ Prepare a suitable container and disposal sack for the consumed filter cartridges.
 - ✓ Switch off the product.
1. Open the toggle-type fasteners on the fan unit housing.
 2. Open the afterfilter unit inspection door.
 3. Remove the main separator oil filter from the housing.
 4. Open the star grips of the mount.
 5. Open fan unit.
 6. Release the fastening clamps on the frame.
 7. Pull out the filter cartridge.
 8. Seal saturated filter cartridges in a disposal sack and dispose of the sack in accordance with local regulations.
 9. Clean the interior of the housing, particularly the frame, with warm water and liposoluble cleaning agents to remove aerosol residue.
 - ⇒ The afterfilter has now been removed and the housing interior is clean.

Install afterfilter

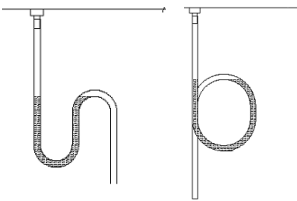
1. Wearing gloves, grasp the new filter cartridge on the frame and remove it from the package.
 - ⇒ This will prevent damage and soiling of the filter medium.
2. Insert the filter cartridge in the mount.
3. Clamp the filter cartridge in the frame with the fastening clamps.
4. Close the star grips of the mount.
5. Close the afterfilter unit inspection door.
6. Re-insert the main separator oil filter in the mount.
7. Close the fan unit housing.
8. Lock the toggle-type fasteners.
9. Fit the housing lid and close the sash locks again.
 - ⇒ The after filter has now been replaced.

8.7 Siphon hose maintenance

The connections for the siphon hoses are located on the underside of the product. They enable the lubricant to drain and prevent undesired intake of false air. The siphon connections and hoses can clog, particularly with sludgy, viscous media, and must be maintained regularly.



- ✓ Perform maintenance while the plant is not in operation.
 - ✓ Prepare a suitable collecting container and a new siphon hose, if necessary.
 - ✓ Switch product off.
1. Disconnect the siphon connections and drain the liquid into a suitable container.
 2. Remove blockages.
 3. Clean the siphon with warm water or degreasing cleaning agents.
 4. Disconnect the siphon hose and rinse it out with warm water.
 5. Inspect the siphon hose for damage and replace the hose as necessary.
 6. Have the siphon pipe falling, without the formation of water pockets.
 7. Establish the siphon connection as shown in the illustration.
 - ⇒ The siphon and siphon hose are now clean.
 8. Fill the siphon hose with cooling lubricant until the medium emerges at the end of the hose.
 - ⇒ Maintenance and cleaning of the siphon hose are now finished.



8.8 Cleaning the product

Clean the product regularly inside and out:

1. Remove severe soiling and large amounts of deposits with an industrial vacuum cleaner.
2. Thoroughly remove deposits of oil and emulsion residue, resinous oil, and fine dusts with a damp disposable cloth, warm water and mild fat-soluble cleaning agents.
3. Clean the cooling air intake area of the motor with a brush.
4. Do **NOT** spray down with a water jet.

9 Faults and Rectification



TARGET GROUP: Maintenance staff

DANGER



Electric shock from high voltage

Severe injury including death possible

- ▶ Any work on the electrical grid and on live components may only be performed by an electrician.
- ▶ Follow the safety rules for working with electrical products.
- ▶ Shut down the product or any live components before working on them and secure them against reactivation (e.g. padlock).
- ▶ Do not clean electrical components with a water jet.

9.1 Product

| Fault | possible cause | fault clearance |
|-------------------------------|---|-------------------------------|
| The system does not start up. | The overload protection of the product has responded. | Notify ESTA customer service. |

9.2 Complete cleaning system

| Fault | possible cause | fault clearance |
|--|--|---|
| Motor protection trips. | Motor was switched on and off too often within a short time. | Adhere to the "Switchon procedures for motors" |
| Dust leaks and dust trails at air outlet openings. | Filter elements worn out. | Replace filter elements. |
| | Filter elements inadequately attached. | Check the assembly of the filter elements. |
| Oil emerges from the outlet opening | Filter breakage | Switch off the product Clean the product Replace the filter |

9.3 Fan and drive motor

| Fault | possible cause | fault clearance |
|---|-----------------------------------|------------------------------------|
| Leakage at the shaft passage | Sealing element worn. | Notify ESTA customer service. |
| The desired air quantity is not reached | Rotation direction not correct. | Change rotation direction. |
| | Throttle is closed in the system. | Open throttle element accordingly. |

| Fault | possible cause | fault clearance |
|---|--|--|
| Smoke development or loud running noises of the fan | Imbalance in the fan. | Immediately switch off. |
| | Impeller scrapes against the housing. | Have fan checked by ESTA customer service. |
| | Noises from the motor. | |
| Vibrational speed too high | Fan has been installed in a strained condition. | Have fan checked by ESTA customer service. |
| | The impeller is unbalanced. | |
| The power uptake is too high. | Direction of rotation is wrong. | Change turning direction. |
| | The resistances in the entire system are too low. | Close the existing throttle element until the desired air volume has been reached. |
| The fan does not run smoothly | The impeller wheel is imbalanced due to deposits. | Immediately switch off. Carefully and thoroughly remove the deposits. |
| | Imbalance due to material corrosion at the impeller, e.g. caused by the transport of aggressive media. | Notify ESTA customer service. |
| | Imbalance due to deformation of the impeller wheel due to overheating. | |
| | Fan has been installed in a strained condition. | |
| | Imbalance due to wear of the impeller wheel. | |
| The supply cable's preliminary fuse has tripped. | Motor was switched on/off too often within a short period of time. | Observe table "Switch-on procedures for motors" |

10 Decommissioning



TARGET GROUP: Commissioning personnel

CAUTION

Harmful separated substances

Effects on respiration, organs, skin and eyes

- ▶ Maintenance, cleaning, repair, and emptying work may only be completed by expert personnel.
- ▶ Ensure that the siphon connection for the discharge of residues is connected.
- ▶ Regularly check the filter elements for clogging.
- ▶ Pay attention to the arrangement and installation location of the filters.
- ▶ Dispose of used filter elements in air-tight-sealed disposal bags in accordance with regional regulations.



Proceed as follows:

1. Disconnect the product from the mains supply and secure it against re-activation (e.g. with a padlock).
 2. Take out the filter and package according to local regulations.
 3. Clean the product inside and out, refer to Cleaning the product [▶ 35].
 4. Disconnect the fan's drive-motor cable from the switch cabinet.
 5. Remove the intake and outlet pipes from the product's ports.
 6. Securely fasten all loose hoses, pipes and cables on the product.
 7. Use approved lifting gear to place the product onto a pallet and secure it with transport locks.
- ⇒ Product prepared for relocation, storage or transport.

11 Packing and storage



TARGET GROUP: Transport personnel

11.1 Packaging



! DANGER

Risk of falling and tripping

Danger to life from falling objects or loads

- ▶ Do not stand under suspended loads.
- ▶ Secure the assembly area and mark it out (e.g., with barrier tape).
- ▶ Always lift the product vertically during loading and assembly work.
- ▶ Only transport the product with suitable, approved means of lifting and transport.
- ▶ Keep a sufficient distance from the product while it is being installed. Distance at least 1.5 times the height of the product.
- ▶ Wear personal protective equipment.

NOTICE



Material damage due to improper transport

Damage to the housing, lines and product components

- ▶ Do not push or pull the product across the floor if it does not have any rollers.
- ▶ Pay attention to any protruding components when setting down the product.
- ▶ Note the centre of gravity (which is not in the centre) when setting down the product.
- ▶ Make sure that the surface can be driven on, is level and sufficiently load bearing.

1. Decommission the product, refer to the chapter Decommissioning [▶ 38].
2. Fasten the product to an adequately dimensioned pallet.
3. Wrap the product in tear-proof packaging foil and pack it to prevent slipping and damage.
4. Clearly mark the packaged product.

Transport The product is transported in accordance with general logistics guidelines.

11.2 Storage

Store the product in a dry room if it is not required for a longer period of time.

| | | |
|---------------------|------|------------|
| Storage temperature | [°C] | +5 ≤ ≥ +25 |
| Humidity | [%] | 30 - 70 |

Fan To prevent "sticking" of the bearings in the drive motor of the fan, the impeller wheel of the fan must be manually turned during storage at intervals of approx. two weeks.

11.3 Disposal



⚠ CAUTION

Harmful separated substances

Effects on respiration, organs, skin and eyes

- ▶ Maintenance, cleaning, repair, and emptying work may only be completed by expert personnel.
- ▶ Ensure that the siphon connection for the discharge of residues is connected.
- ▶ Regularly check the filter elements for clogging.
- ▶ Pay attention to the arrangement and installation location of the filters.
- ▶ Dispose of used filter elements in air-tight-sealed disposal bags in accordance with regional regulations.

NOTICE



Contamination

Due to contamination of the extraction system with dust hazardous to health, the system or its parts cannot be returned to ESTA. Dispose of collected material and filter elements according to the country-specific and regional laws and regulations.

Proceed as follows:

1. Remove the filter elements and package them air-tight.
2. Take the removable parts out of the product.
3. Package the product and the detachable parts as specified by local regulations.
4. Dispose of everything according to local regulations.

12 Technical data



NOTICE

Differing technical data for special versions

- ▶ The potentially differing technical data for special versions of the standard product can be found on the type plate
- ▶ We reserve the right to make technical changes.

FK = Filter cassette

| | 56203 |
|-----------------------------------|---------------------|
| Type | OILMAC 3000 |
| Power (kW) | 2,2 |
| Voltage (V) | 400 |
| Frequency (Hz) | 50 |
| Power input (A) | 4,5 |
| Fuse (A) | C16 |
| Protection class | IP 54 |
| max. air flow (m ³ /h) | 3.300 |
| Intake (mm) | 300 |
| Dimensions (mm) | 1.790 x 650 x 1.265 |
| Weight (kg) | ca. 220 |
| Sound pressure level (dB[A]) | 74 |
| No. of filter elements (Pc) | 3 |
| Filter type | FK |
| Filter area (m ²) | 24,9 |
| Filter material | F9 |
| No. of filter elements (Pc) | 3 |
| Filter type | FK |
| Filter area (m ²) | 24,9 |
| Filter material | H13 |

12.1 Spare parts list



NOTICE

Improper storage

Material damage

- ▶ Store spare parts in the original packaging until use.
- ▶ Observe storage temperature.

OILMAC

| Spare part | Unit | Article number |
|--|------|----------------|
| Oil filter cartridge F9 | 1 | 01000594 |
| Aluminium wire mesh compl. | 1 | 02007624 |
| Compact filter CSK S-3 | 1 | 01001153 |
| Aerosol filter cartridge H13 | 1 | 01000569 |
| Filter mat PSB 290 S 555x280 | 1 | 01000529 |
| PVC fabric hose, clear (m) | 1 | 03000093 |
| Disposal bag for filters and disposal carton | 1 | 30000567 |
| | 10 | 06000358 |

13 Optional equipment

Discharge air port with muffler

A discharge air line (pipe or hose) is connected to the discharge air port in order to route the exhaust air to the outdoors. The outlet of the exhaust air line must remain clear in order to guarantee the flow rate. The muffler can be installed in the discharge air line in order to reduce the sound pressure level.

The discharge air line should be routed as follows:

- kink-free and no sagging
- no large bending radius, angles as flat as possible
- with slightly tilted outlet opening so that condensate can drain.

Potential-free contact

An option for connection is start-up via an external potential-free contact between the product and the connected processing machine. The product is started or stopped by the processing machine. The external potential-free contact is connected to a plug connector at PIN 1 and 2. The potential equalisation is connected to PIN marked "protective earth". Additional details are listed in the accompanying circuit diagrams.

The toggle switch must be set to "AUTO" for this operating mode.

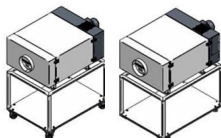
As soon as the main switch is set to "ON", the contacts of the product's black socket carry live voltage.

During maintenance work on the connected processing machines and products or control units, the control line to the dust extractor must be disconnected. Set all main switches to the "0" position and secure with a padlock against unintentional start-up. Disconnect all mains connectors.

Air extraction operation afterfilter F9

With a high separation performance by the F9 filter as an afterfilter element, residual aerosol is separated before the exhaust air flows out of the outlet opening. This makes the product suitable for air extraction operation.

Mobile/stationary frame



The product is installed on a mobile or stationary supporting frame. The mobile version is equipped with castors and fixed rollers and enables mobility for transport or relocation.

Stand



The product is mounted on a stand. Use of a stand provides the benefits of saving space in the work room. The stand is designed to be fastened to the floor and must be anchored in the floor.

14 Declaration of incorporation

pursuant to EC guideline Machinery 2006/42/EC Appendix II, Part 1 B

| | |
|-----------------------|---|
| Name of manufacturer: | ESTA Apparatebau GmbH & Co. KG |
| Address: | Gotenstr. 2 – 6 89250 Senden / GERMANY |

| | |
|---|---|
| Name of the authorised documentation manager: | ESTA Apparatebau GmbH & Co. KG |
| Address: | Gotenstr. 2 – 6 89250 Senden / GERMANY |

We hereby declare that the

| | |
|----------|--------------------|
| Machine: | Oil mist separator |
| Type: | OILMAC 3000 |

was developed, designed and manufactured in compliance with the EC directives specified in this declaration.

It also fulfils the protection goals of the following EC/EU directives:

2014/30/EU EU – Electromagnetic Compatibility Directive

The protective goals of the 2014/35/EU Low Voltage Directive have been accomplished in accordance with Appendix I, No. 1.5.1 of the 2006/42/EC Machinery Directive.

Reconciled norms used:

- DIN EN ISO 12100
- DIN EN ISO 13857
- DIN EN 349
- DIN EN 61000-6-1
- DIN EN 61000-6-2
- DIN EN 61000-6-3
- DIN EN 61000-6-4
- DIN EN 61000-3-2
- DIN EN 61000-3-3

Applied national standards and technical specifications:

- VDI 3677

Safety and health protection requirements according to 2006/42/EC Appendix I that are applied and observed:

1.1.2.a; 1.1.2.b; 1.1.5; 1.3.2; 1.4.1; 1.4.2.1

Note: The incomplete machine can be operated only once it has been determined that the building's capacities meet the specifications in the directives mentioned above.

Technical documentation was created according to Appendix VII Part B of this guideline. We agree to provide the responsible authorities with this documentation in electronic form upon justified request.

Place and date Senden, 27/10/2019

Signature



Philipp Raunitschke
Managing Director

ESTA maintenance service - *Think about tomorrow today!*

ESTA MAINTENANCE SERVICE OFFERS THESE ADVANTAGES!

- Check of your extraction system by an experienced and well trained team of ESTA service technicians
- Ensuring optimum functionality and efficiency of your extraction equipment and system, even many years after the initial operation
- Minimising the risk of a product failure
- Short response times
- Reduction of risk of costly repair expenses
- Preserving the value retention of your system
- Compliance with statutory provisions
- Detailed maintenance documentation as verification of compliance with statutory regulations
- Relieving the workload for internal service employees
- Permanent cleanliness in the work stations

Service phone +49 (0) 7307 804-0

Online support www.esta.com/en

Office hours

Monday to Thursday 08:00 to 17:00

Friday 08:00 to 16:00



ESTA maintenance contract - *Your Plus in terms of service!*

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