The World of Extraction

ESTA

OPERATING INSTRUCTIONS

SRF K-10/K-15

Welding Fume Filters

The World of Extraction ESTA

Welcome to the sphere of suction technology

Your purchase of an **ESTA** machine has been a good decision. The design of our quality products complies with the latest state of the art. **ESTA** products have been devised to provide for clean air at the workplaces at which they are applied. This results in an even more enhanced level of quality and longer machine times and, particularly, healthier working conditions. Should you have any questions pertaining to suction technology issues, please feel free to contact us at any time. Our experts will be gladly at your disposal.

Your **ESTA Absaugtechnik** Team

www.esta.com

Operating manual

SRF K-10 FM
SRF K-15 FM

Item No. 55.203 (SRF K-10 FM)
Item No. 55.235 (SRF K-10 FM IFA W3)
Item No. 55.235.005 (SRF K-10 FM IFA W3)
Item No. 55.212 (SRF K-15 FM)
Item No. 55.229 (SRF K-15 FM IFA W3)
Item No. 55.229.003 (SRF K-15 FM IFA W3)

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

Translation of the original instructions
55203-08-02

Edition notice

Original operating manual
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Type of device: SRF K welding fume filter
Item No.: 55.203 // 55.234 // 55.234.005 // 55.235 // 55.235.005 // 55.212 // 55.228 // 55.228.007 // 55.229 // 55.229.003 and variations

Publisher

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Warnings and safety instructions


Electrical current hazard


Note


Reference to ESTA customer service


Reference to legal regulations

Contents

1. General safety notes

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**
- **Start-up**
- **Operation**
- **Maintenance and repair**

The device must be used only by persons who have been instructed in its handling and are explicitly authorized 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.

The device must be used only to exhaust welding fumes. No liquids, aggressive gases, easily flammable materials or glowing particles (such as hot embers) may be aspirated.

Use of the device when welding oil-covered metals is prohibited. **Fire hazard!**

The device must not be used or stored outdoors or under wet conditions.

Only original ESTA replacement parts must be used; use of other products will void the warranty.

During exhaust, the volume flow returned from the device into the room must be no more than 50% of incoming air. With free room ventilation, the incoming airflow must equal the room volume every hour. This means that the rate of air replacement must be once per hour.

$$\text{Incoming airflow } [m^3/h] = \text{room volume } [m^3] * \text{air replacement rate } [1/h]$$

Example:
When the device is operating at the nominal airflow volume of 2,000 m³/h the same volume of fresh air must be fed. This occurs with natural ventilation if the volume of the workroom is 2,000 m³ (e.g., 835 m² surface with a 2.4 m ceiling height).

The exhaust arm's detection device must be tracked in consideration of the suction range of about 200 mm and of exploitation of the welding site's welding fume movement.

Make sure that the power cable does not become damaged by being run over, compressed, pulled, etc.

The power cable must be examined regularly for signs of damage or ageing.

The device must not be used if damage to the power cable is determined.

The power cable and plug must be replaced only by an appropriately trained electrical specialist.

For the power supply and the device's power cords, only original ESTA replacement parts must be used. This guarantees that they are spray-proof according to applicable standards and have the necessary mechanical strength.

The power cord must be plugged in only after the welding fume filter has been successfully set up at its place of use. On devices with alternating current drive (SRF K-10) a 16 amp protected wall socket, and for devices with three-phase drive (SRF K-15 or custom equipped SRF K-10), a 16 amp protected CEE wall socket is needed (see model plate).

Plugs and connectors complying with EN 61241-14 must be used for connecting electrically driven industrial exhausts and dust extractors. Coupling plugs and connectors or adapters are not permitted.

After use, before moving the devices to another site and before cleaning, maintenance, or replacement or removal of movable parts, the device must be unplugged and any compressed air must be disconnected.

From its first use, the device contains toxic dust. Emptying and maintenance processes must be performed by expert personnel who are wearing appropriate protective gear. The device must not be operated without the complete filtration system!

According to directive 89/655/EWG 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. Turn the device off with the emergency switch and pull the plug. If there is a fire, the fire department is to be alerted immediately, and the fire must be contained by appropriate means.

2. Preventing mechanical hazards

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

Residual risk:
If a covering that can only be unfastened with a tool is removed, there is risk of injury if the machine is running.

3. Preventing electrical hazards

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.

Residual risk:
If a covering that can only be unfastened with a tool is removed, a hazard is posed by electric current.

4. Preventing dust hazards

When emptying the dust collection container, it is possible to inhale dust. Following the instructions in section “Disposing of collected dust materials” will minimize this hazard.
When transporting the device, close the exhaust openings to prevent dust from escaping.

5. Intended use

The ESTA welding fume filter has been manufactured according to the state of the art and in compliance with safety regulations.

The welding fume filters SRF K-10 and K-15 are suitable for exhausting welding fumes where non-alloyed steels are welded at portable work locations. The purified air can be directed back into the work area. The devices are equipped with a filter for dust class “M” (moderate hazard) for separation of dust and smoke with an exposure limit > 0.1 mg/m³.

Depending on the type of application desired (see rating plate with the addition **IFA W3**), the filter is also suitable for welding fume suction from alloyed steels with a ≥ 30% proportion of chromium-nickel (with test certificate **IFA W3**) with the suction arms used from ESTA.
Optionally, the device can be used with an additional activated carbon filter as a soldering fume filter.

Aspiration of welding fumes is not permissible with welding of oil-moistened parts.

The device must not be used or stored outdoors or under wet conditions.

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

ESTA sets up the welding fume filter according to the operator’s information.

Only plugs and connectors complying with EN 61241-14 must be used for connecting electrically driven industrial exhausts and dust extractors. Extension cords, coupling plugs and connectors or adapters are not permitted.

6. Technical data and description

6.1 Welding fume filter

Technical changes reserved

Model (see model plate)		K-10 FM	K-10 FM IFA W3	K-15 FM	K15 FM IFA W3
Filter type		Filter cartridge			
Number of filter elements		1			
Filter area	[m²]	10	18	15	18
Connection voltage	[V]	230 (400*)		400	
Drive output	[kW]	1.3 (1.1*)		2.2	
max. Vacuum	[Pa]	2,400			
max. Volume flow	[m³/h]	1,000		2,000	
min. Volume flow	[m³/h]	--	750	--	750
Intake port	[mm]	max. 1x dia. 140		max. 2x dia. 140	
Dimensions (L x W x H)	[mm]	946 x 761 x 1,361			
Environmental conditions	[°C]	$5 \leq \vartheta \leq 40$			
Rated current	[A]	8.3 (2.4*)		4.6	
Circuit breaker	[A]	16			
Nominal frequency	[Hz]	50			
Max. air humidity (%)		60			
Weight	[kg]	69		74	
Max. sound pressure level	[dB(A)]	72			
Production year		see model plate			

* = Special version with 400 V three-phase current

** = The measurement surface sound pressure level was measured according to DIN EN ISO 3744 in an open area, at maximum volume flow, at a 1 m distance from the surface of the device, at a height of 1.6 m above ground. From the measurement surface sound pressure level and the device dimensions, the sound power level according to DIN EN ISO 3744 was calculated.

6.2 Functional description

The welding fume exhaust device is equipped with a 1.1 kW, 1.3 kW or 2.2 kW motor, depending on the model, which drives a radial fan. The device is turned on and off using the red-green double push button or the red/yellow main switch.

The vacuum created by the fan draws air through the suction hose connected to the intake port.

A permanent filter set up within the filter housing for each application separates the dust that is in the exhausted air.

The purified air is guided back into the room through the exhaust vents or optionally led outdoors.

Depending on how the device is equipped, the filter is cleaned manually or automatically with compressed air. Devices with a IFA test certificate signal to indicate that the filter must be cleaned.
The cleaning frees the filter elements of smoke deposits and reconditions them. A tilting mechanism deposits the dust on the bottom of the filter housing into a dust bag.

7. Delivery, installation and start-up

7.1 Delivery and transport

At delivery, the device is fastened to a pallet. After the protective cover and the bottom fasteners have been removed, it can be picked up with a forklift. Please use a crane.
The device must be transported only with its exhaust arm fully attached.

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

ESTA customer service: +49 (0) 7307 804 - 0

When moving the device, make sure the ground can support it and be driven over.

7.2 Installation

SRF K-10 FM, SRF K-15 FM

Other than perhaps moving a connection for the power necessary, no installation work is needed. Additionally, devices with pneumatic cleaning (supplementary equipment) require a compressed air connection near the device (4-6 bar, oil- and water-free).

7.2.1 Wall installation (supplementary equipment)

The wall console (supplementary equipment) is for installation on a vertical wall. Have the wall's load capacity checked by an expert for the weight of the device. Also make sure that after installation safe operation is possible (filter cleaning and disposing of collected dust materials). Additionally, the connection for electricity and, if necessary, compressed air must be prepared.

Note for the device models SRF K-10 FM IFA W3 & SRF K-15 FM IFA W3:

For **stationary** applications, TRGS 560 calls for the air to be guided outdoors. The exhaust air transfers are available as accessory parts.

7.2.1 Installing the exhaust arm (supplementary equipment)

The suction arm that may be supplied in the package is placed on the standpipe which is attached to the device.

If the suction arm is attached securely, the bushing attached to the hose is inserted into the device's intake port.

When transporting the welding fume filter, you should ensure the suction arm is in a fully laid out position. **Risk of tipping over!**

For **SRF K-10** max. 1 extraction arm ø140mm with 3m lenght

For **SRF K-15** max. 2 extraction arms each ø140mm with 3m lenght

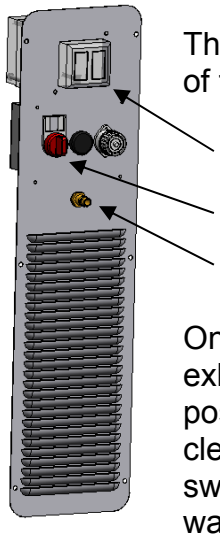
7.3 Start-up

Only persons authorized under “General safety instructions” must turn the device on and off!
Before setting up the cable connection between the device and the power grid, check to make sure the operating voltage shown on the model plate is the same as that of the grid.

The device must be placed on a level surface as near as possible to the workplace. Lock the device’s wheels.

Before using the device, its operation must be tested.

Diagram of the basic device



The switch for turning the suction assembly on and off is on the side of the device. Pressing the switch’s green button starts the device.

On devices with automatic cleaning (supplementary equipment) the exhaust is started by turning the additional rotary switch to the “ON” position. Switching off (position 0) activates cleaning. Additional cleaning can be done after the device has stopped, if the rotary switch is turned rightward (“Cleaning” position). This requires oil- and water-free compressed air (4-6 bar at the compressed air nozzle) at the attached coupling. The ¼-inch plug nipple can be connected with a DN 7.2 ¼-inch coupling to the compressed air network. For safety, the connection to the compressed air network should not be made until the device is at its set-up area.

On devices driven by three-phase current, check the direction of rotation!

Before a device with three-phase drive is started up (power supplied through a CEE plug) the fan rotor's direction of rotation must be checked. By briefly turning the device on with the filter housing tilted, you make sure that the fan rotor's direction of rotation agrees with the direction of the arrow.
If the direction of rotation is wrong, the polarity of the power supply must be reversed. For this purpose, the CEE plug is equipped with a phase inverter. Using a screwdriver to turn the pole pin built into the insulated part of the plug changes the fan rotor's direction of rotation.

When the direction of rotation is wrong, the device gets impermissibly hot, the airflow volume gets weaker, and the device's performance suffers. This can also damage the device.

8. Maintenance and troubleshooting

8.1 Maintenance instructions

For maintenance by qualified personnel, the device must be opened, cleaned and inspected at the given locations, as well as possible, without any hazard being posed to maintenance personnel or other persons. Proper precautions must be taken before cleaning and removal of wearing parts. This includes locally filtered forced-air ventilation in the area in which the device is being maintained, and proper personal protective gear.

During maintenance or repair work, all soiled objects that can no longer be adequately cleaned must be disposed of. Such objects must be disposed of in an impermeable bag in compliance with applicable regulations for disposal of such refuse.

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 25°C.
Before the device is placed into storage, it is recommended that it be cleaned with a damp cloth, that the filter be cleaned, and that the dust container be emptied.

The device must never be cleaned with flowing water.

It is recommended that the operator have maintenance performed once per year. Depending on the mode of operation, the time intervals could be even shorter. During maintenance, the device is to be tested by a trained expert for correct operation. A log is to be kept of the main annual inspection in the included maintenance book. It must document the date of inspection, deficiencies determined and the name of the inspector. The date of the next inspection can be read from the test plate installed on the device.

8.2 Inspection and maintenance intervals

Regular maintenance consists of 3 intervals:

1. Daily inspection includes:

➢ ***By the dust extractor'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. Monthly inspection includes:

➢ ***By expert maintenance personnel***

Visual and functional inspection,

- for filter leaks (dust trails or deposits on the air outlets)

3. 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
- Vacuum measurement
- Current consumption measurement
- Visual check of filters
- Seal inspection

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

This inspection must be done once per year.

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.
If there is a malfunction, the dust extractor must be switched off immediately and the responsible maintenance service notified!

According to directive 89/655/EWG 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.

Maintenance must be performed according to accident prevention regulations. The device must be disconnected from the electrical power and from the compressed air network. Even when the compressed air supply is turned off, the compressed air tank is still under pressure (depending on model).

Get the most from ESTA's maintenance service!

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

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

8.3 Troubleshooting

Always use the following checklists if a malfunction is evident. Call the ESTA maintenance service right away if there is a malfunction that is not discussed in these lists. Do not perform any repairs on the device yourself if they are not explicitly specified.

Problem	Possible cause	Possible solution
Suction too weak	Main filter dirty Suction hose clogged	Clean filter In a vacuumed area, hold the hose vertically and bang it out with a rubber mallet.
Warning signal for low suction volume persists despite filter cleaning.	Dust collection container too full. Filter pores clogged in main filter	Empty Replace filter
Motor protection triggers	Fan frequently turned on and off	On devices with potential-free contact, motor protection must be reset manually.

If dust escapes or clouds up from the air outlets, if smoke develops or the fan runs loud, the device must be disconnected from the power immediately!

During maintenance, the device must generally be disconnected from the electrical grid and compressed air network.

9. Monitoring the minimum airflow volume

Test-certified models, including SRF K-10 FM IFA W3, as well as SRF K-15 FM IFA W3 are equipped with a vacuum monitor (B1) as a safety device for the minimum airflow volume to be monitored. This monitoring device measures filter resistance. With increased dust soiling of the filter, the flow resistance increases along with the vacuum behind the filter. If the value set on the vacuum monitor is reached, a siren sounds. This means that the minimum airflow volume has fallen to the limit and that the filter must be cleaned.

For this purpose, the device must be shut off at the installed rotary switch and not at the red push button — otherwise cleaning will not occur. This switch also allows additional cleanings.

At **SRF K-10** max. 1 extraction arm ø140mm

Ø in mm	1x140
min. air flow in m³/h	750
Standard value for pressure controller (B1)	1.200

At **SRF K-15** max. 2 extraction arms each ø140mm

Ø in mm	1 x 140	2 x 140
min. air flow in m³/h	750	750
Standard value for pressure controller (B1)	1.200	1.700

10. Cleaning

The people assigned to cleaning work must be instructed on the aspirated toxic materials and wear a breathing protection mask with a class P3 particle filter, as well as protective gloves. All distractions by uninvolved persons must be prevented.

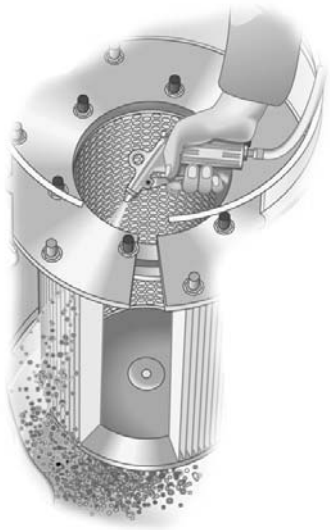
During cleaning work, all soiled objects that can no longer be adequately cleaned must be disposed of. Such objects must be disposed of in impermeable dust bags in compliance with applicable regulations for disposal of such refuse.

Test-certified models, including SRF K-10 FM IFA W3, as well as SRF K-15 FM IFA W3 are equipped with a safety device for monitoring the minimum airflow volume of the exhaust. A warning signal sounds when the filter must be cleaned.

If the warning signal still sounds after successful cleaning and restart of the device, check the amount of material in the dust collection equipment. After cleaning, wait about a minute to check the fill level of the dust collection container so that the removed dust can settle. Then empty the dust collection container (see the section on “Disposal”).

10.1 Cleaning the filter manually (standard version)

This process should be carried out during downtime when the device is shut off. Perform the following steps in the order described:

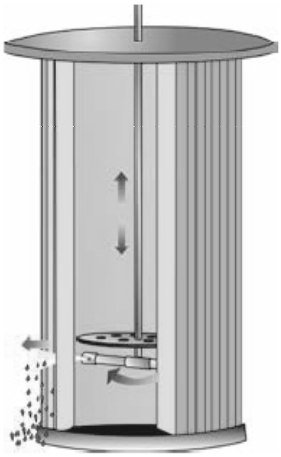


After the device shuts down, wait about a minute for the dust in the device to settle. Turn the cap counter-clockwise to remove it from the filter housing.

Now you can clean the filter with the stream from the handheld compressed air pistol to clean as much of the filter surface as possible. Keep the compressed air nozzle about 8 cm away from the surface of the filter. The nozzle’s pressure should be between 4 and 6 bar. Use only oil- and water-free compressed air.

10.2 Rotation cleaning (supplementary equipment)

Minimum air pressure: 4.5 bar
Maximum air pressure: 6 bar



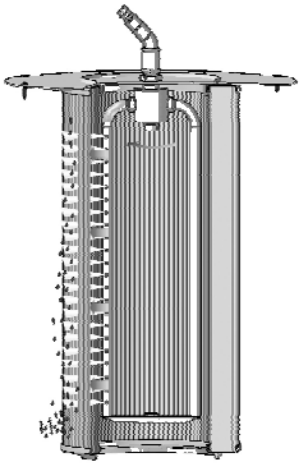
This process should be carried out during downtime. Perform the following steps in the order described:

After the device shuts down, wait about a minute for the dust in the device to settle.

Now connect a compressed air hose to a DN 7.2 ¼-inch coupling to the ¼-inch plug nipple of the rotation cleaning. After the valve lever is opened, the compressed air rotates the cleaning nozzle inside the fine filter cartridge. Through up and down motion of the tube, the filter is cleaned from top to bottom.

10.3 Automatic cleaning (supplementary equipment)

Minimum air pressure: 4.5 bar
Maximum air pressure: 6 bar



When the fan is shut off at the rotary switch for cleaning (not at the red button!), after about a minute, a valve will open for 0.8 seconds. Pulsing compressed air moves a rotation nozzle at the interior of the filter, which blows through the filter surface uniformly from the inside to the outside. The smoke particles from the filter surface are loosened and fall downward.
The compressed air needed for this comes from an integrated compressed air tank that is linked from the outside to the compressed air connection. After a one-minute pause, repeat this process.
By turning the rotary switch to the right, the process can also be triggered manually.
During the exhaust process, filter cleaning is not possible.

When the filter portion is tilted, the device must not be turned on!

10.4 Filter replacement

Filter replacement must be performed in a well-ventilated room or outdoors. The people assigned to this work must be instructed on the aspirated toxic materials and wear a breathing protection mask with a class P3 particle filter, as well as protective gloves. All distractions by uninvolved persons must be prevented.



After an extended operation period, the filter pores can be clogged by extremely fine dust. Even the cleaning equipment cannot remove this dust. The filter must be replaced with a new one.
If possible, filter replacement must be done when there is no work going on. Used filters must be discarded in compliance with local regulations.

Before the filter is replaced, it must first be cleared of loose dust using the available cleaning system, and the power must be cut off.

Turn the cap at the top of the filter housing counter-clockwise until it stops, and then lift it off. When doing this, make sure you do not crush your fingers.
Then tip the filter housing forward, and when the fan port becomes visible, cover it with a suitable sheet (cardboard or paper).

Now loosen the stop screw nuts underneath the filter cartridge while using a wrench to provide resistance on the threaded rods. Then tilt the filter housing back again and remove the eight Phillips screws from the cover plate. Now the filter cartridge can be removed. To remove it without excess dust, pull an ESTA plastic bag over the filter housing so that when the filter cartridge is being removed, the plastic bag completely covers the filter cartridge. This makes for low-emission replacement of the main filter and prevents air pollution.

Put the plastic bag, the used filter cartridges and the used accessories into a dustproof container and dispose of them according to local regulations.

Now a new filter can be installed.

On devices with automatic cleaning (supplementary equipment) the compressed air line must be disconnected first. The integrated compressed air container must be emptied by repeatedly activating the cleaning process.
Only then is it permissible to use the bayonet joint to separate the connection hose from the cleaning container.
Then unscrew the connection hose from the connection cap. The device must be tilted forward and the nut on the cleaning mounting removed.
After removing the sealing cap, the cover plate fastened with eight Phillips screws must be loosened and removed with the cleaning equipment. Now the filter can be removed, as described above.

Cleaning the filter cartridge in a dismantled state by blowing it out or beating it is not permissible.

11. Disposal

The people assigned to disposal work must be instructed on the aspirated toxic materials and wear a breathing protection mask with a class P3 particle filter, as well as protective clothing. All distractions by uninvolved persons must be prevented.



11.1 Disposing of collected dust materials

After the cleaning process or an exhaust operation phase, wait about one minute for the dust to settle in the device. Only then can the dust collection container be emptied.

The device's wheels must be locked. To empty the dust collection equipment, remove the opening flap of the disposal port on the front side of the filter housing. After that, cover the opening with the polyethylene collection bag provided for the purpose (five are provided with the device's initial equipment) and pull the integrated string tight. Now tilt the filter housing forward. When no more dust falls from the opening into the polyethylene collection bag,

tilt the filter housing back up to vertical position. Remove the polyethylene collection bag and close it. Close the bag with the included cable ties so that it is dust-proof. Then close the opening again with the cap.

Follow applicable regulations when disposing of collected dust!

11.2 Disposing of the device

Before disposing of the device, empty the dust collection container, remove the filter cartridge, and dispose of both of them in compliance with local regulations.

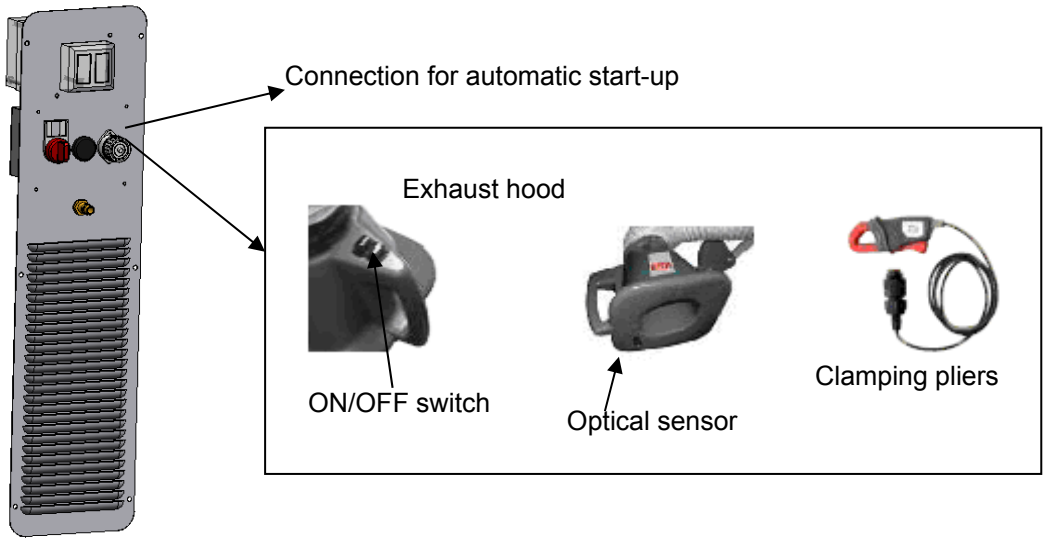
Pack the device in a suitable manner and dispose of it in compliance with local regulations.

Due to contamination of the device with toxic dust, ESTA cannot take the device back.

12. Optional equipment

12.1 Start-up with potential-free contact

Optionally, the device can be equipped with start-up through a potential-free contact. That means that the exhaust can be coupled with a connected device.



With an ESTA exhaust arm, this can be done with an ON/OFF switch on the hood or through an optical sensor that recognizes the electrical arc during welding and starts the device. If there is no other impulse for 90 seconds, the exhaust automatically shuts off.
This switching can also be used with the clamps that are attached to the welding cable and receive the impulse during welding.

(Please follow the enclosed switching documentation!)

During maintenance to the device, the control cable to the control box must be disconnected.

12.2 Additional lighting

Optionally, the plastic exhaust hood can be equipped with 12-volt lighting. Power must be supplied through an external socket to the transformer included in delivery.

12.3 Wall console

To save space, the welding fume filter can be attached to the wall with a wall console. During installation, make sure that the console is attached to the wall vertically. The SRF must be connected completely securely to the wall before the device is started.

12.4 Using an activated carbon filter

Optionally, the exhaust ports can be equipped with an additional activated carbon filter. If an activated carbon filter is used, the welding fume filter can also be used as a soldering fume filter. The activated carbon filters the soldering fume odours from the exhausted air to minimize offensive smells in the workplace.

12.5 Discharge air port

§

For **stationary** use, the air is to be channelled out into the open as per TRGS 560.

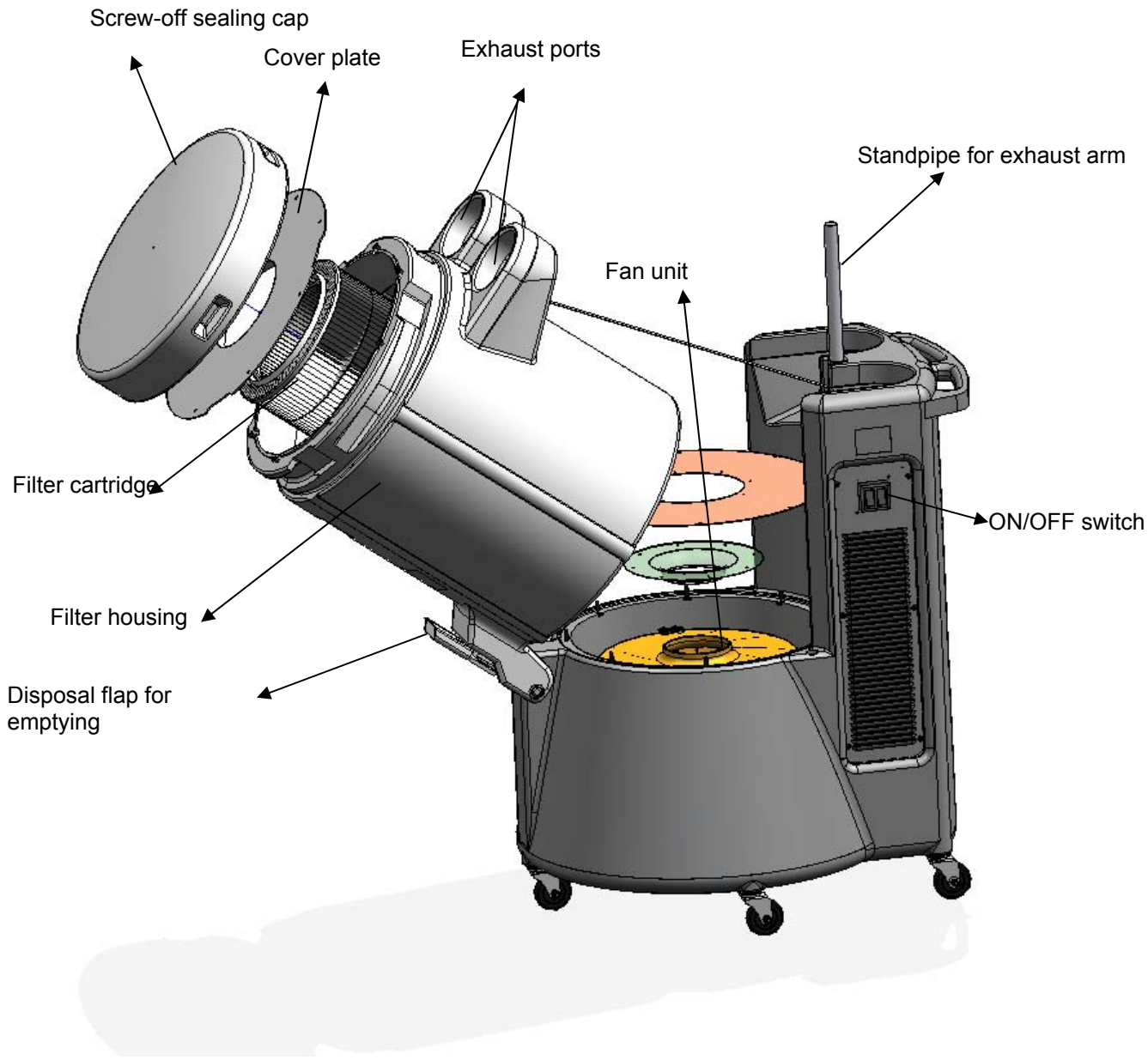
The device can be fitted with an optional discharge air port. To do this it is possible to connect a discharge air line (hose or pipe) to channel the discharge air out into the open, for example.

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

Model SRF		**K-10**	**K-15**
Discharge air port	[mm]	ø180	ø280

13. Device diagram

Welding fume filter SRF K-10 / SRF K-15 FM
with IFA W3 test certificate



With the model information, request the replacement parts you need from the ESTA replacement part service: +49 (0) 7307 804 - 0

14. 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

Here we explain that the design of the machine

Machine:	Dust extractor for collection, transport and elimination of dry dusts and welding fumes
Series:	Welding fume filter SRF K
Model:	**SRF K-10, …K-15**

conforms to the following regulations:

2006/42/EC	EC Machine Directive,
2004/108/EG	EC Directive on Electromagnetic Compatibility
2006/95/EC	EC low-voltage directive

Reconciled norms used:

DIN EN ISO 12100:2011-03	Safety of machinery - General principles for design - Risk assessment and risk reduction
DIN EN ISO 13857:2008-06	Safety of machinery, devices and systems; safety distances to prevent hazard zones from being reached
DIN EN 349:2008-09	Safety of machinery; minimum distances for preventing body parts from being crushed
DIN EN 60335-1:2012-10	Household and similar electrical appliances - Safety - General requirements
DIN EN 60335-2-69:2012-08	Household and similar electrical appliances - Safety - Particular requirements for wet and dry vacuum cleaners, including power brush, for commercial use
DIN EN 61000-6-1:2007-10	EMC - Generic standards - Immunity for residential, commercial and light-industrial environments
DIN EN 61000-6-2:2006-03	EMC - Generic standards - Immunity for industrial environments
DIN EN 61000-6-3:2011-09	EMC - Generic standards - Emission standard for residential, commercial and light-industrial environments
DIN EN 61000-6-4:2011-09	EMC - Generic standards - Emission standard for industrial environments
DIN EN 61000-3-2:2010-03	EMC - Limits - Limits for harmonic current emissions (equipment input current ≤16A per phase)
DIN EN 61000-3-3:2009-06	EMC - Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤16A per phase and not subject to conditional connection

National norms and technical specifications used:

VDI 3677	Filtering separators

Senden, 30 April 2015

Dr. Peter Kulitz
CEO

Notes

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