



Operating instructions

Airfilter MINI

TEKA Absaug- und Entsorgungs-
technologie GmbH

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Please enter here the specific data relating to the Airfilter you have purchased, so that if you contact TEKA GmbH by telephone you will have the necessary data immediately on hand:

Description and type of the appliance: Airfilter _____
Year of construction: _____
Machine no.: _____
Commission no.: AU- _____
Date of commissioning: _____

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1 Introduction

In recent years, a special type of welding fume extraction systems has become an ever more prominent factor: Filtering of welding fumes and return of the filtered air into the workshop area.

This shows that the issue of environmental consideration has turned for the better for all concerned. There never has been any doubt about the existence of harmful fumes at welding sites. However, type of fumes depends on the particular welding process and welding technique. One can generally differentiate between gases and fumes. The fumes could also be referred to as fine dust. Investigating them under the microscope, we are able to see particles of a size that will pass through the respiratory tract deep into our lungs. The size of these particles is as small as 0.001 mm or even less.

Ventilation is the general approach to improve the conditions at the relevant work positions. Generally, this is effected by continuously exchanging the air in the workshop, i.e. the total air volume is exchanged at a high rate. This method will reduce the concentration of harmful particles within the hall to a great extent, however, it will improve the air within the breathing range of the individual welder to a negligible portion only.

This also applies to overhead suction systems, i.e. the installation of large extraction hoods overhead of welding places. Here again the heavily polluted air passes upwards through the breathing range of the welder. Extraction and/or filtering take place overhead and outside the range of the welder. A point-attack extraction of the welding fumes right at their place of origin is far more effective than room ventilation or overhead extraction. Both capital investment for on-the-spot fume extraction as well as the operating costs for such systems are far below those of the previous conventional solutions.

Environmental and work protection measures are prerequisite for the successful application of advanced welding technologies, aside from the optimisation of such welding processes. In view of increased awareness of the problems involved and in compliance with pertinent legal directives, the danger potential for personnel and environment must be considered at an early stage and it must be minimised using appropriate technical solutions.

2 Intended use

2.1 Intended use

The Airfilters MINI are exclusively for the purpose of suction of gases and fumes, which are contaminated with harmful substances and which occur in the following areas of activity:

- Soldering in the electronics industry,
- Laser processing,
- Dental and medical technology,
- Dermatology,
- Catering and
- Hairdressers.



An improper use of the device and of live components can cause damages of single elements up to dangers to life and limb!

The unit must not be used to extract welding fumes containing oil, explosive dusts and gases, hybrid mixes, burning or glowing substances, gases, water etc. Furthermore, the unit must not be used in explosive zones (If in doubt, contact the manufacturer!).



3 Safety instructions

The following basic safety measures must be observed to prevent of electric shocks, injury or fire when using electrical devices:

- Read and follow the instructions listed below before using the filter systems !
- Store the operating and service instructions in a secure and readily accessible space !
- Protect the connecting lead from heat, wetness, oils and sharp edges !
- Confirm the correct voltage. (Refer to the unit type plate)
- Use only original TEKA spare parts !
- Do not operate the unit without a filter cartridge installed !
- Pull the mains plug before opening the unit !
- The exhaust gird must not be obstructed or blocked in any way!
- Always take care that the unit stands secured and that the caster brakes are set !
- Pull the mains plug when cleaning or servicing the unit, when exchanging any parts or when changing machine settings for a different function !
- The filter cartridges cannot be regenerated for repeated use !
- The filter cartridges must be disposed of according to pertinent legislation and directives !
- At regular intervals inspect the mains supply lead for signs of damage !
- The unit must not be used when there is any damage or irregularity at the mains supply lead !
- Use only dry and oil-free compressed air with pressure ratings from minimum 3 bar to 4 bar maximum.
- Reposition the suction arm during welding operations, if possible by exploiting the thermal flow of the welding fumes
- The maximum permissible distance of 25 cm to the welding point should not be exceeded.
- Do not use the filter unit when any one or more components of the system are defective, missing or damaged. In any one of these instances contact the TEKA Service Department: Phone: ++49 (0) 2863 / 92 82 0
- When extracting carcinogenic welding fumes as from the processing of nickel or chrome alloys, the requirements of the directives on clean air of the German TRGS 560 'Return of process air when working with carcinogenic media' must be observed. (And/or the equivalent national directives for the respective user.) The suction unit TEKA-STRONGMASTER-BGIA2110/4110 has been checked and approved by the Institute for Work Safety (BGIA) under the certification number xxxxxx. This certification is part of the operating instructions.
- Further information regarding the TRGS 560 can be obtained from the 'BGIA - Berufsgenossenschaftliches Institut für Arbeitssicherheit' (Institute for work safety of the employers' liability insurances) at D-53754 Sankt Augustin, Germany.

4 Product description

4.1 Overview

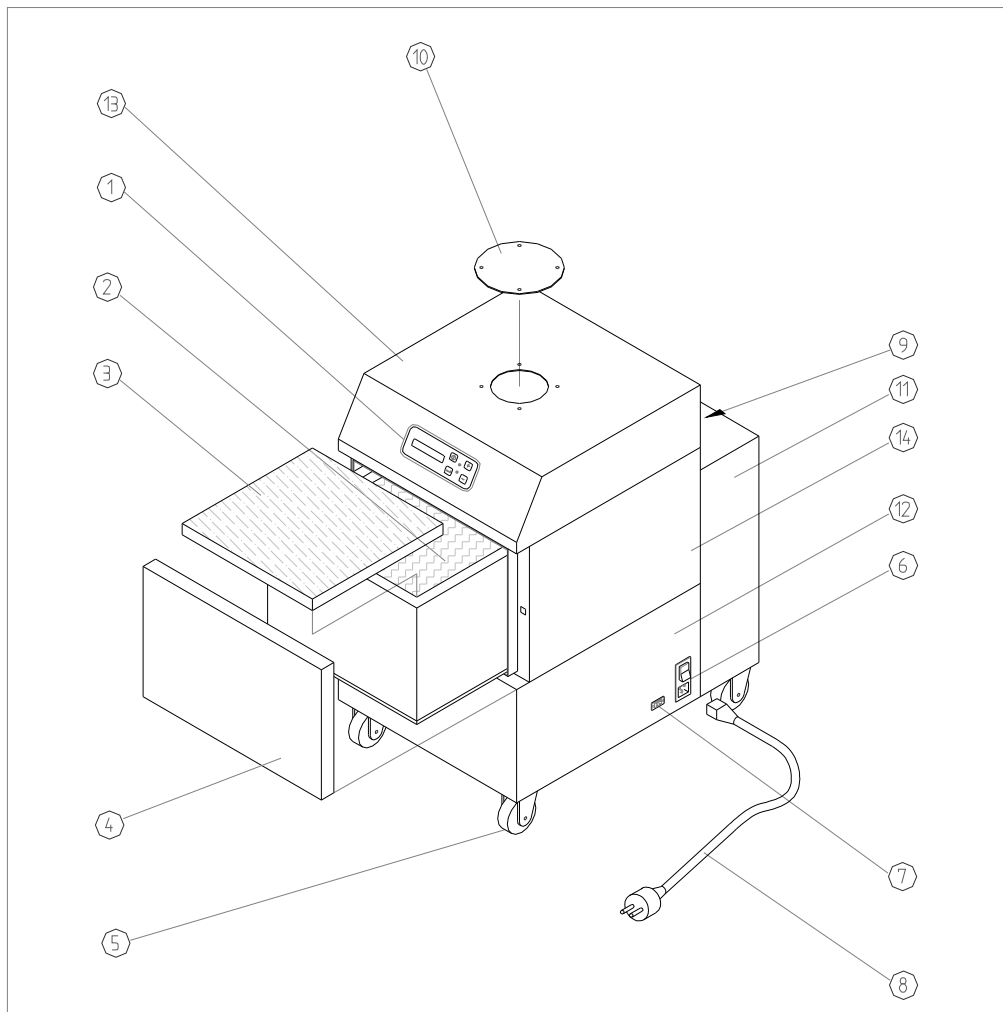


Figure 1: Total view Airfilter MINI

- | | | | |
|----|--|----|------------------------------------|
| 1 | Transparent display, membrane keyboard | 2 | Combifilter |
| 3 | Pre-filter mat | 4 | Service flap on the filter housing |
| 5 | Castors (partly with brakes) | 6 | ON/OFF switch, appliance inlet |
| 7 | Sub-D-9 plug connection | 8 | Mains cable |
| 9 | Blind plug (various sizes) | 10 | Blind cover (with 4 screws) |
| 11 | Sound absorption module | 12 | Turbine housing |
| 13 | Housing cover | 14 | Filter housing |



4.2 Function description

The Airfilter is used for extracting gases and fumes contaminated with harmful substances. Either using a suction arm (accessory) extracted directly from the environment of the Airfilter or a suction hose is directly closed between the machine to be extracted and the Airfilter.

The Airfilter is either switched on or controlled on the membrane keyboard or by the control of the machine to be extracted (remote switch automatic mechanism).

The gases/fumes extracted by the suction hose/suction arm are extracted into the filter housing with the used combifilter.

The combifilter consists of the following three filter levels:

- Pre-filter mat,
- Air filter and
- Activated carbon filter with filter end stage.

The clean gas is extracted by turbine below the activated charcoal filter and then emitted to the atmosphere through the sound absorption module attached at the side.

The Airfilter is connected to the mains supply using a appliance inlet (included). The appliance inlet for the power supply of the Airfilter is positioned on the turbine housing near the sound absorption module.

4.3 Connection to the external control

A control cable with a sub D9 connection is required for operating the Airfilter via a remote switch automatic mechanism. The pin terminal assignment of the sub-D9 connection (see in section 4.5.2) is to be complied with!

4.4 Technical data

Manufacturer:	TEKA GmbH Industriestrasse 13 D - 46342 Velen Tel.: ++49 (0) 28 63-92 82-0 Fax: ++49 (0) 28 63-92 82-72 e-Mail: service@ teka.eu
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Product designations:	Airfilter MINI
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Housing MINI:	Width	365 mm
	Height	626 mm
	Depth	376 mm
	Housing material	Sheet steel, lacquered



Atmosphere:	Atmospheric temperature, perm.	+ 5 °C to + 35 °C
	Relative humidity	max. 65 %

Data of Airfilter MINI:	Suction output, free blowing	10 - 300 m ³ /h
	Connect load	1.2 kW
	Power connection	230 V / 50/60 Hz
	Max. underpressure	900 - 21.000 Pa
	Total weight	28 kg
	Sound pressure level	58 dB(A)

Combifilter for Airfilter MINI:	Net weight	4.3 kg
	Filter class	H 13 (main filter) and F 7 (Filter end stage)
	Filter surface	2.5 m ² (main filter) 0.5 m ² (filter end stage)

Pre-filter mat for Airfilter MINI:	Filter class	G 4
	Filter surface	0.07 m ²



5 Transport and Setting up

- During transport and interim storage, the device has to be protected against weather conditions.
- During transport, the device must be prevented from falling over and shifting.
- Lift and transport the device with the help of a manual lift truck or a forklift.
- When lifting or dropping the device, do not remain under or next to the charge.
- Observe the indications by the manufacturer or contact the manufacturer.
- Only qualified staff is authorized to set up and install the device.
- Wear safety boots equipped with steel toes
- The ground must be free from vibrations.
- If you have doubts, please contact the manufacturer

6 Commissioning

6.1 Commissioning of the Airfilter

6.1.1 Assembly of the suction arm



Note!

Follow the assembly and operating instructions of the respective suction arm!
You will only find general information for this in these operating instructions.

The parts described here are not included in the scope of delivery of the Airfilter.

The suction arm can be assembled on the housing cover of the Airfilter (see the following figure).

The suction arm may be assembled in different ways depending on the design.

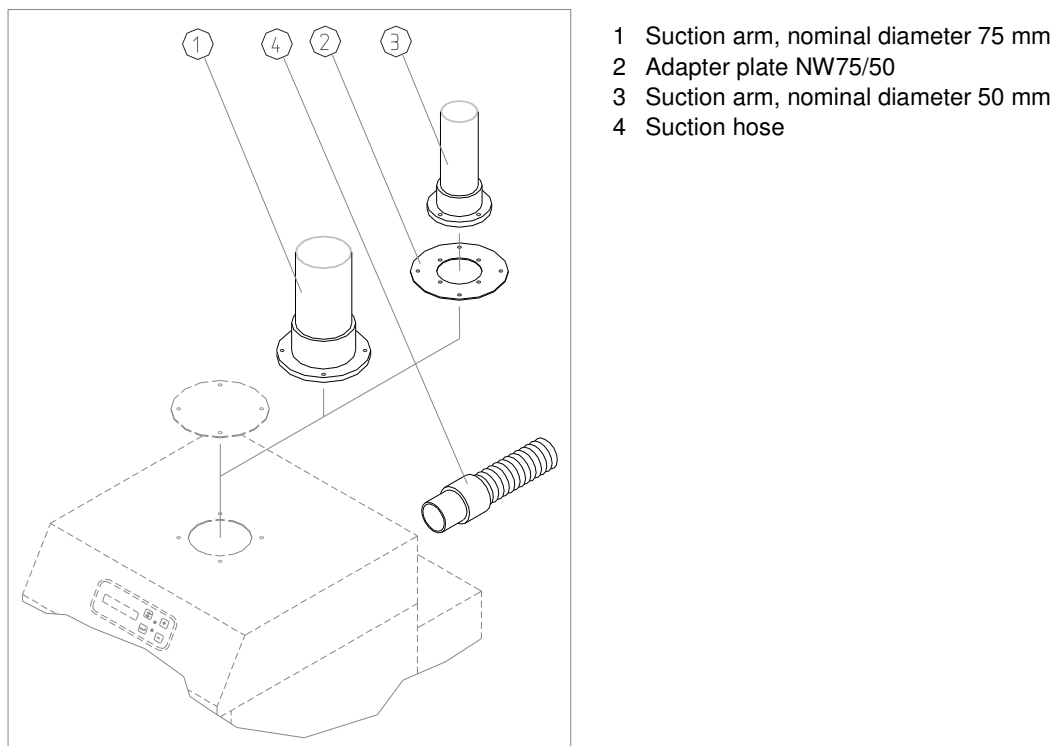


Figure 2: Assembly of various suction arm types on the Airfilter MINI

6.1.2 Connection of an external control

The Airfilter is switched on or controlled (remote switch automatic mechanism) either on the membrane keyboard or by an external control (e.g. of the machine to be extracted).

The remote switch automatic mechanism is connected to the Airfilter using a nine-pole cable with sub-D9 plugs.

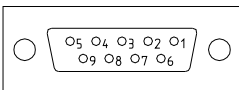
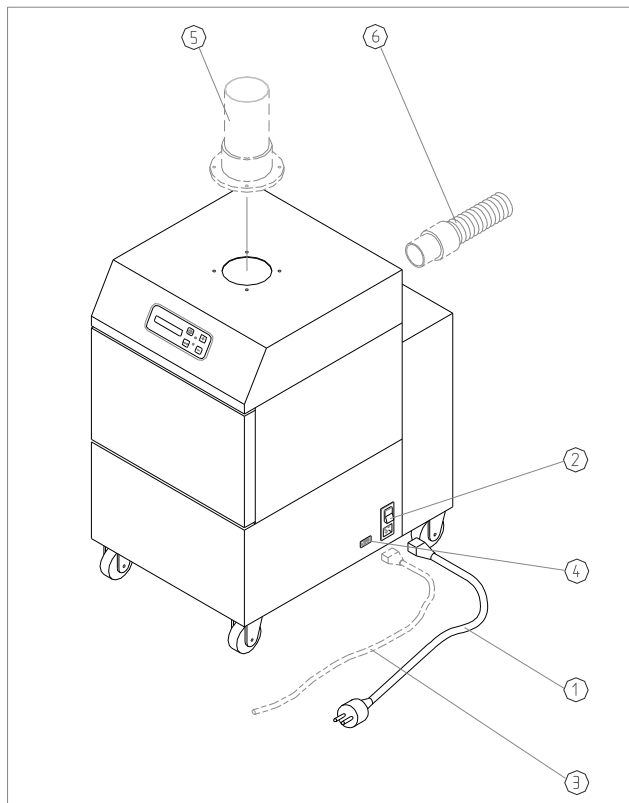
Figure	Pin	Designation	Explanation
 <p>Connector socket Sub-D9, on the side of the unit</p>	1	Start contact	In order to put the LMD into operation a contact between Pin1 and Pin2 have to be established. Important: LMD switches off first when the time programmed has been reached. (Overtravel time approx. 20 s).
	2	EXTIN+	Internal switch contact for starting the turbine and increasing or reducing the motor speed of the turbine.
	3, 4	„Filter alarm“	Floating output (normal open contact) for interpretation of the warn alarm „Filter alarm“
	5, 6	Operation control	Floating output (normal open contact) for interpretation of the operation control. The alarm at this output always occurs when the unit identifies an operation.
	7	Increasing turbine motor speed	In order to increase the performance of the turbine, a contact between Pin7 and Pin2 is necessary. When spreading a permanent contact, this motor speed of the turbine will be increased till the motor speed maximum.
	8	Reducing turbine motor speed	In order to reduce the performance of the turbine, a contact between Pin8 and Pin2 is necessary. When spreading a permanent contact, this motor speed of the turbine will be reduced till the motor speed minimum.
	9	GND	Internal reference potential (Ground)

Table 1: Connection of an external control (arrangement of the plug contact/ terminal assignment of connection)

6.1.3 Connection of the Airfilter



- 1 Mains cable
- 2 Appliance inlet / On/off
- 3 Connection cable for remote control (not included)
- 4 Sub-D9-connection
- 5 Suction arm (not included)
- 6 Suction hose (not included)

Figure 3: Connection of the Airfilter

Connect the Airfilter as follows:

- First you plug the mains cable (Pos. 1) into the appliance inlet (2) on the Airfilter and only after this the plug of the mains cable into the 230-V socket.
- Insofar as an external control of the Airfilter is planned, then connect the external control with the sub-D9 connection (4) to the housing of the turbine using a corresponding cable (3).
- Insofar as it is desired, mount the suction arm (5) onto the top of the Airfilter according to the assembly instructions.
- Push the air intake fitting of the suction hose (6) into the matching intake opening. Insofar as the suction output of the Airfilter allows this, several suction hoses may also be connected, in order e. g. to extract several machines at the same time.
- Finally check all connections again that they are correct and fitted tightly.

After connecting all hose pipes and checking the connection the Airfilter can be put into operation.

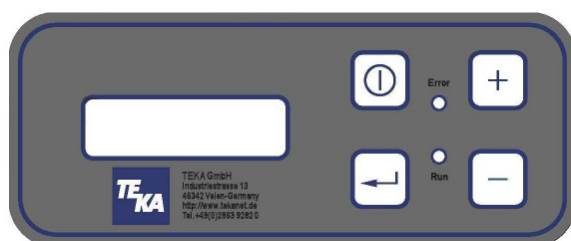
6.2 Qualification of the operating personnel

Only trained or instructed personnel should be permitted to work at the Airfilter. The responsibilities of the personnel for the installation and maintenance should be clearly defined!

For the instructions we recommended the use of the added instruction record on the last page of this manual.

Changes to settings on the Airfilter may only be carried out by specially trained service personnel of TEKA GmbH.

6.3 Operation



Attention:

Possibilities of adjustment of the programme, menu navigation ecc of the system you will find in the separate attached manual of steering.

7 Maintenance

7.1 General information

All service work must be carried out within the given deadlines and with the corresponding care.

The life and production quality of the Airfilter can be maintained through precautionary service of the components.

Besides the regular cleaning you are urgently advised to replace parts subject to wear and tear as a precautionary measure.

7.2 Replacement of the combifilter

The filter elements are to be replaced, as soon as the measured pressure differential on the combifilter exceeds the set end value. The display of the pressure differential in the transparent display shows in this case 100 % and the red error LED (Error) will light permanently.

Some Airfilter models have also been equipped with an acoustic signal (acoustic alarm), that gives a clear beep sound to report that the filter needs to be replaced.



Note!

The acoustic signal installed in several Airfilter models can be switched off by pressing one of the buttons +, – or ENTER on the membrane keyboard once.

The acoustic alarm will sound once again every time the Airfilter is switched on.

So that you are regularly reminded that the combifilter needs to be replaced in permanent operation of the Airfilter, the acoustic signal will be repeated after 8 hours, then after 4 hours, after 2 hours and then each further hour.

The alarm will cease to sound immediately only after the combifilter has been replaced.



Caution!


Poisonous dust!

When working with /on the filter elements there is the danger that you may breath in raised dust or come into contact with such.

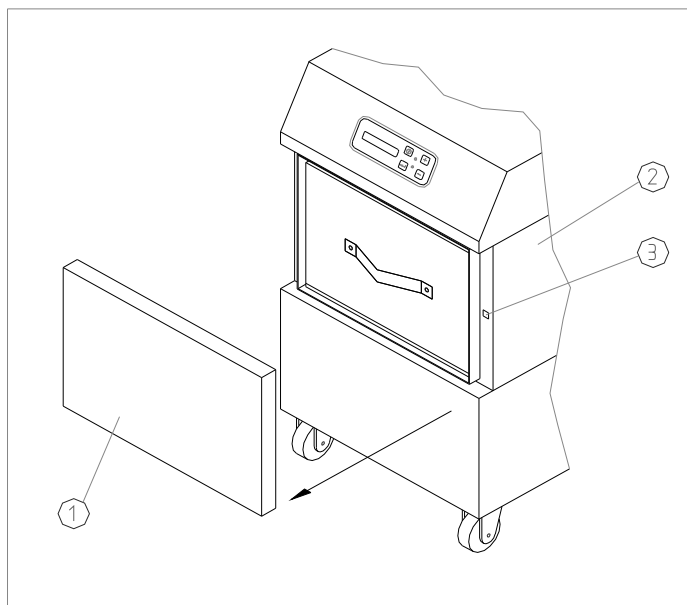
- Therefore, before commencement of the work you should put on a fine dust mask of the protective level 3 and disposal gloves made of polyethylene (long design).

You should proceed as follows when replacing the filter:

Switch off Airfilter

- Switch off the Airfilter via the membrane keyboard using the button . Alternatively you can switch off the machine to be extracted. This way the Airfilter will be switched off automatically after the set post running time.
- Secure the Airfilter against being switched on again unexpectedly, by:
 - first switching the on/off switch to **0** and subsequently
 - removing the mains cable from the mains socket.

Remove service flap



- 1 Service flap
- Filter housing
- 2 Filter housing
- 3 Latch

Figure 4: Remove service flap

- Hold the service flap (Pos. 1) in both hands and remove it from the filter housing (2).
Note: You have to pass the resistance of the latch (3)!

Remove combifilter



- 4 Handle
- 5 Combifilter

Figure 5: Remove *combifilter*

- Hold the handle (4) of the combifilter (5) with one hand and pull the combifilter out of the filter housing.
Use the other hand to support the combifilter.
- Place the whole combifilter with the pre-filter mat on top of it into a plastic bag, which can be seal tightly, and seal it.
- Dispose of the disassembled combifilter immediately.



Note!

Depending on the consistency of the gases/of the fumes – to be extracted in particular with a high proportion of dust or fibres – it can be useful, to first check just the pre-filter mat for contamination and if necessary to just replace this.

Insert new combifilter

In principle, the new combifilter will be inserted in the reverse order. Please observe the following work steps:

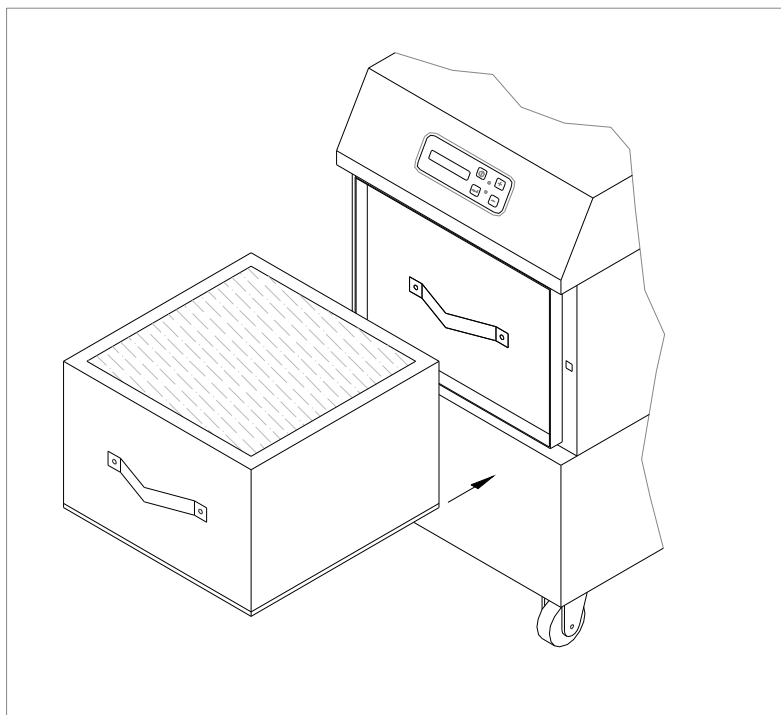
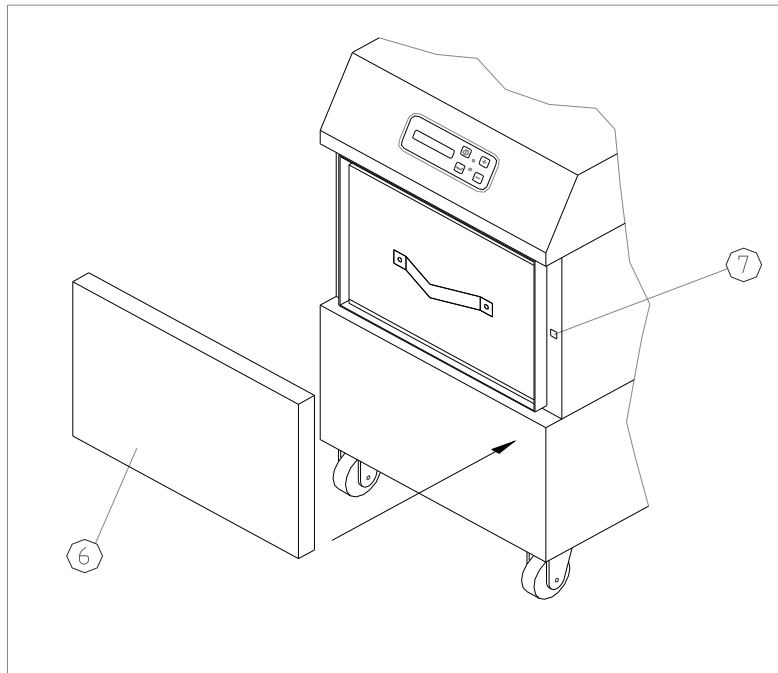


Figure 6: *Insert new combifilter*

- Remove the combifilter, which is to be inserted, with the already integrated pre-filter mat from the packaging.
- Push the combifilter into the filter housing.
Make sure that the surrounding gasket on the combifilter is pointing downwards and the combifilter is pushed in as far as the latch, otherwise the service flap can not be closed.

Close the housing of the Airfilter



- 6 Service flap
- 7 Latch

Figure 7: Close filter housing

- Hold the service flap (6) in both hands and press it evenly onto the service opening, until the latch (7) engages in the service flap.



8 Fault and error search

Fault	Cause	Correction
No suction output (fumes/gases are not being extracted).	Air intake hose not connected to the Airfilter.	Connect air intake hose to the Airfilter.
	Air intake hose not connected to the machine.	Connect air intake hose to the industrial laser.
	Damage to the air intake hose.	Replace air intake hose.
	Air intake hose is connected to the wrong machine.	Connect air intake hose to the correct machine.
	Air intake hose is connected to the wrong point of entry (opening) of the machine.	Connect air intake hose to the right point of entry (opening) of the machine.
	Air intake channel blocked.	Check air intake channel, if necessary correct error found.
	Clean gas channel blocked.	Check clean gas channel, if necessary correct error found.
Suction output too low (fumes/gases are hardly being extracted).	Filter package full.	Replace filter package, dispose of old filter properly!
	Damage to the air intake hose.	Replace air intake hose.
	Air intake hose not correctly connected to the Airfilter.	Check fitting of the air intake hose to the Airfilter, if applicable reinsert into air intake opening.
	Air intake hose not correctly connected to the machine.	Check fitting of the air intake hose to the machine if necessary reconnect.
	Clean gas channel too narrow.	Check clean gas channel, if necessary correct error found.
	Air intake hose is connected to the wrong point of entry (opening) on the machine.	Connect air intake hose to the right point of entry (opening) on the machine.
	Air intake channel too narrow.	Check air intake channel, if necessary correct error found.
	Error on the Airfilter.	Contact TEKA GmbH, if necessary return Airfilter.
Airfilter is not running.	Plug connection power supply not or wrongly plugged in.	Check/correctly plug in plug connection power supply.
	No power on the socket.	Check mains, if necessary correct error.
	Connection cable for external control not or wrongly plugged in.	Check connection cable for external control, if necessary plug in correctly.



Fault	Cause	Correction
	No control signal for remote control of machine.	Correction according to the operating instructions of the machine.
	Error on the Airfilter.	Contact TEKA GmbH, if necessary return Airfilter.



9 Disposal

To facilitate the impeccable performance of your TEKA dustoo extraction device along with the disposal of the extracted dust, we are pleased to offer you the following services:

- Help in finding a residue disposal company situated near you.
- A list of all the residue disposal companies in Germany is available free of charge.
- Maintenance contract
- Customer support via telephone

Telephone: + 49 (0) 28 63 / 92 82 - 0

Fax: + 49 (0)28 63 / 92 82 72



10 Spare parts and parts subject to wear and tear

Designation	Art. no
Combifilter element, size: 305x305x200 (Airfilter Mini)	10031941
Pre-filter mat set of 10 (Airfilter Mini)	10033
Caster wheel D=50mm, with brake	2263054
Caster wheel D=500mm, without brake	2263055
Suction turbine 1.2 kW, DC, 230V	200421160120006
Appliance inlet / On - Off	25000030
Mains cable with earthing contact type and appliance inlet	25000031
Blind plugs for housing cover, NW 50	1000021
Blind plugs for housing cover, NW 71	100022



11 Declaration of conformity TEKA-Airfilter



TEKA
Absaug - und Entsorgungstechnologie GmbH
Industriestraße 13
D - 46342 Velen
Phone.:+49 2863 92820 Fax:+49 2863 928272
e-Mail: sales@teka.eu Internet:<http://www.teka.eu>

We herewith declare in sole responsibility that the before mentioned product, starting from machine No.: 12000010011001, conforms to the following standards:

Directives on machine building: 2006/42/EG
Electromagnetic compatibility: 2014/30/EU
Directives on printing device: 97/23/EG
Directives on low voltage: 2006/95/EG

Applied harmonised standards:

- DIN EN 349
- DIN EN ISO 4414
- DIN EN ISO 12100
- DIN EN 60204 Teil 1
- DIN EN ISO 13857
- DIN EN 82079 Teil 1

plus further national standards and specifications:

- DIN 45635 Teil 1

This declaration will become void if changes are effected to the suction and filter systems which were not agreed upon in writing by the manufacturer.

A handwritten signature in black ink, appearing to be 'Rainer Kuhn', written over a light blue rectangular background.

Velen, the 29th of december 2014



Instruction record for Airfilter MINI

By his signature, the staff member confirms that he has been instructed regarding the following items:

Instruction item	completed
Description of the filter unit	
Operation and application of the filter unit	
Explanation of the safety instructions	
Explanation of the control elements of the filter unit	
Maintenance, change, and dedusting of the filter elements	
Appropriate disposal	

Instruction held by: _____.

Name of the staff member (legible)	Signature

Signature of instructor _____