

Instructions for use SMARTair plus, SMARTair plus mobile



Always be on the safe side.



KaVo. Dental Excellence.

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1 User instructions

1.1 User guide

Requirement

Read these instructions prior to first use to avoid misuse and prevent damage.

1.1.1 Symbols

	See the Safety/Warning Symbols section
	Important information for users and technicians
	CE mark (European Community). A product bearing this mark meets the requirements of the applicable EU directive.
	Action required

1.1.2 Target group

This document is for dental technicians and laboratory personnel.

1.2 Service



Service hotline:

+49 7351 56-1600

Service.Zahntechnik@kavo.com

Please indicate the product serial number in all requests.

Additional information can be obtained at: www.kavo.com

1.3 Warranty terms and conditions

Within the scope of the applicable KaVo delivery and payment conditions, KaVo guarantees proper function, absence of defects in material and workmanship for a period of 12 months from the date of purchase as confirmed by the salesperson. In case of justified complaints, KaVo will honour its warranty with a free replacement or repair.

The warranty does not cover defects and their consequences that arose or may have arisen due to natural wear, improper handling, cleaning or maintenance, non-compliance with operating, maintenance or connection instructions, corrosion, contaminated media supply or chemical or electrical influences deemed abnormal or impermissible in accordance with factory specifications.

The warranty does not usually cover lamps, light conductors made of glass and glass fibres, glassware, rubber parts and the colourfastness of plastic parts.

The warranty expires if defects or their consequences could possibly have arisen because the product has been modified or changed. Warranty claims can only be asserted when they are immediately reported to KaVo in writing.

This notification must be accompanied by a copy of the invoice or delivery note on which the manufacturing number is clearly visible. In addition to the warranty, the

statutory warranty claims of the purchaser also apply with a warranty period of 12 months.

1.4 Transportation and storage

1.4.1 Currently valid packaging regulations



Note

Only valid for the Federal Republic of Germany.

Properly dispose of and recycle the sales packaging, in accordance with the relevant packaging regulations, through waste management businesses or recycling companies that run a comprehensive return system. KaVo has licensed its sales packaging in accordance with this directive. Please conform with the regional, public waste-disposal system regulations.

1.4.2 Damage in transit

In Germany

If the packaging is visibly damaged on delivery, please proceed as follows:

1. The recipient of the package must record the loss or damage on the delivery receipt. The recipient and the representative of the shipping company must sign this delivery receipt.
2. Leave the product and packaging in the condition in which you received it.
3. Do not use the product.
4. Report the damage to the shipping company.
5. Report the damage to KaVo.
6. You must contact KaVo before returning a damaged product.
7. Send the signed delivery receipt to KaVo.

If the product is damaged but there was no discernable damage to the packaging upon delivery, proceed as follows:

1. Report the damage to the shipping company immediately and no later than 7 days after delivery.
2. Report the damage to KaVo.
3. Leave the product and packaging in the condition in which you received it.
4. Do not use a damaged product.



Note

Failure on the part of the recipient to comply with any of the above obligations will mean that the damage will be considered to have arisen following delivery (in accordance with ADSp. Art. 28).

Outside Germany



Note

KaVo is not liable for damage arising from transportation. Immediately inspect the delivery after receipt!

If the packaging is visibly damaged on delivery, please proceed as follows:

1. The recipient of the package must record the loss or damage on the delivery receipt. The recipient and the representative of the shipping company must sign this delivery receipt.
Without this evidence, the recipient will not be able to assert a claim for damages against the shipping company.
2. Leave the product and packaging in the condition in which you received it.
3. Do not use the product.

If the product is damaged but there was no discernable damage to the packaging upon delivery, proceed as follows:

1. Report any damage to the shipping company either immediately or no later than 7 days after delivery.
2. Leave the product and packaging in the condition in which you received it.
3. Do not use a damaged product.



Note

Failure on the part of the recipient to comply with any of the above obligations will mean that the damage will be considered to have arisen following delivery (in accordance with CMR law, Chapter 5, Art. 30).








1.4.3 Information on the packaging: Storage and transportation



Note

Please keep the packaging in case you need to return the product for servicing or repair.

The symbols printed on the outside are for transportation and storage, and have the following meaning:

	Transport upright with the arrows pointing upwards!
	Fragile - protect against impact!
	Protect from moisture!
	Permissible stacking load
	Temperature range
	Humidity
	Air pressure

2 Safety



2.1 Description of safety instructions



2.1.1 Warning symbol



	Warning symbol
---	----------------

2.1.2 Description of hazard levels



Safety instructions with three hazard levels are used in this document to prevent personal and property damage.

	 CAUTION
	CAUTION indicates a hazardous situation that can cause damage to property or mild to moderate injuries.

	 WARNING
	WARNING indicates a hazardous situation that can cause death or serious injury.

	 DANGER
	DANGER indicates a hazardous situation that can directly cause death or serious injury.

2.1.3 Structure

	 DANGER
	The introduction describes the type and source of the hazard. This section describes the potential consequences of non-observance. ▶ The optional step includes necessary measures for hazard prevention.

2.2 Purpose – Proper use

2.2.1 General information

The overarching guidelines and/or national laws, national regulations and the rules of technology applicable to machines for the startup and use of the KaVo product for the intended purpose are to be applied and complied with.

This KaVo product has been designed solely for dental technology, industrial and trade applications. Any other type of use is not allowed.

"Proper use" includes following all the instructions for use and ensuring that all inspections and service tasks are performed.

The user must ensure that the unit works properly and is in satisfactory condition before each use.

Authorized to repair and service the KaVo product:

- Technicians with appropriate product training from KaVo branches
- Technicians of authorized dealers specially trained by KaVo



Note

The product must be cleaned and serviced according to instructions if it is not to be used for an extended period of time.

KaVo does not accept responsibility for damage caused by:

- External influences, poor media quality or faulty installation.
- The use of incorrect information.
- Repair work carried out incorrectly.



Note

Any waste which is generated must be recycled or disposed of in a manner which is safe both for people and for the environment. This must be done in strict compliance with all applicable national regulations. Questions on proper disposal of the KaVo product can be answered by the KaVo branch.

2.2.2 Product-specific

The KaVo product is for vacuuming and separating hazardous dust (with MAK values) and inert dusts and vapours (primarily methyl methacrylate).

The use of this KaVo product is not permitted in areas subject to an explosion hazard.



Note

The KaVo product is not suitable for vacuuming collected dust (such as on the floor).



Note

The KaVo product is not suitable for vacuuming hazardous mineral dusts as per VBG 119 and carcinogenic materials as per VBG 113.






The materials are vacuumed with the aid of various collecting elements in accordance with ergonomic regulations.

Connections to the suction opening:

- SMARTair plus: Suction hood
- SMARTair plus mobile: Suction hood or direction connection to small units

2.3 Safety instructions

2.3.1 General information

	<p>⚠ WARNING</p> <p>Injury or damage from damaged functional parts. If functional parts are damaged, it can cause additional damage or personal injury.</p> <ul style="list-style-type: none"> ▶ If functional parts are damaged: discontinue your work and repair the damage nor notify service technician! ▶ Check the electrode lines and accessories for damage to the insulation.
	<p>⚠ CAUTION</p> <p>Damage due to liquids Faults on electric components.</p> <ul style="list-style-type: none"> ▶ Protect product openings from penetration of liquids. ▶ Remove liquids from the inside of the device.
	<p>⚠ CAUTION</p> <p>Product damage from incorrectly adjusting the tension. Destruction of electrical components.</p> <ul style="list-style-type: none"> ▶ Adjust the voltage input for the product to the existing mains voltage.
	<p>⚠ CAUTION</p> <p>Damage from overvoltage. The product becomes damaged.</p> <ul style="list-style-type: none"> ▶ The nominal voltage and frequency must be the same as that on the rating plate.
	<p>⚠ CAUTION</p> <p>Premature wear and malfunctions from improper servicing and care. Reduced product life.</p> <ul style="list-style-type: none"> ▶ Perform regular proper care and maintenance!

2.4 Protective equipment

The following protective equipment is recommended when emptying or servicing the suction system:

- Facemask
- Gloves
- Safety goggles

2.5 Disposal of electronic and electrical devices



Note

According to EC directive 2002/96 concerning used electrical and electronic devices, this product is subject to the cited directive and must be disposed of accordingly within Europe.

Before disassembly / disposal, the product must be completely reprocessed (disinfected, sterilised) according to the chapter on "Reprocessing methods".

For more information, please contact KaVo (www.kavo.com) or your dental supplier.

For final disposal, contact:

Germany

To return an electrical device, proceed as follows:

1. At the homepage www.enretec.de of enretec GmbH, you can download a form for a disposal request under the menu item `eom`, or you can use it as an online request.
2. Fill out the request with the corresponding information, and send it as an online request or by fax (+49(0)3304 3919 590) to enretec GmbH.

The following avenues are also available for questions and for initiating a disposal request:

Telephone: +49 (0) 3304 3919 500

E-mail: pickup@eomRECYCLING.com and

Post: enretec GmbH, eomRECYCLING Department

Kanalstraße 17

16727 Velten

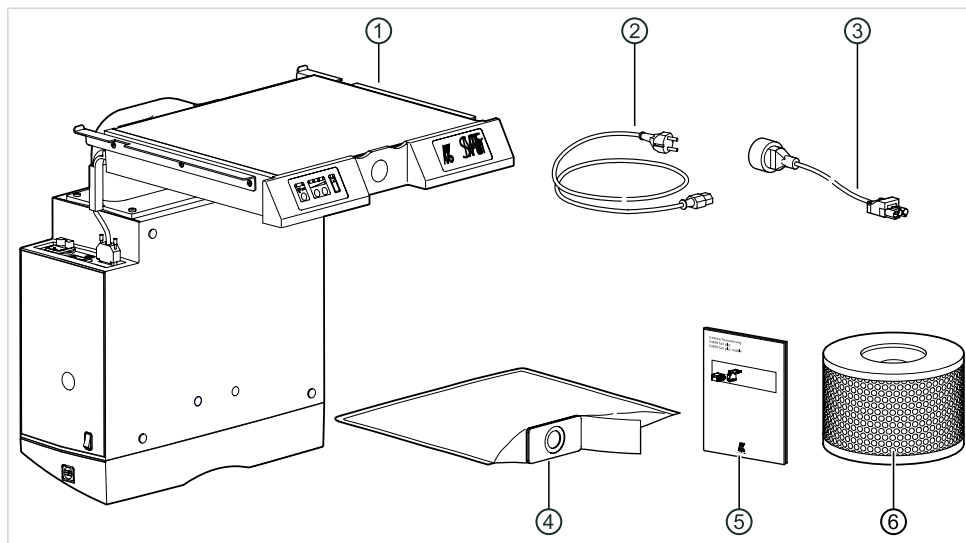
3. Your **movable** device will be picked up in your practice, and your **permanently installed** unit will be picked up at the curb at your address on the agreed deadline. The owner or user of the device will bear the costs for disassembly, transportation and packaging.

International (EU)

For country-specific information on disposal, contact your dental supplier.

3 Product description

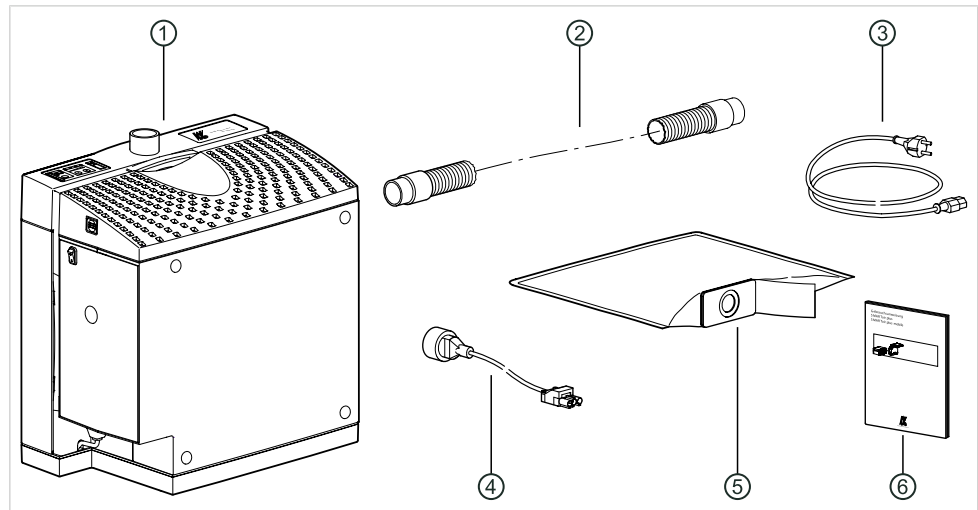
3.1 Scope of delivery



SMARTair plus

- ① Motor filter drawer
- ② Power cable
ENMat. no. 1.001.8593
GBMat. no. 0.692.6901
CHMat. no. 1.001.8594
USMat. no. 1.001.8595
OFFMat. no. 1.001.8598
- ③ Connection line
ENMat. no. 1.002.2525
GBMat. no. 1.002.2529
CHMat. no. 1.002.2527
USMat. no. 1.002.2528
OFFMat. no. 1.002.2530

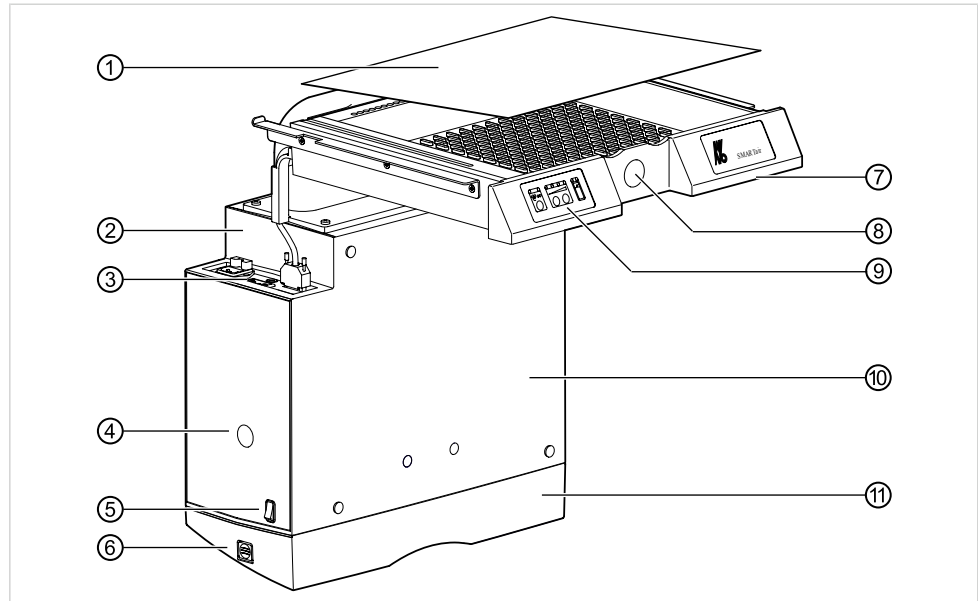
- ④ Replacement filter bag
- ⑤ Instructions for useMat. no. 1.001.9703
- ⑥ Ultrafine filterMat. no. 0.658.9802



SMARTair plus mobile

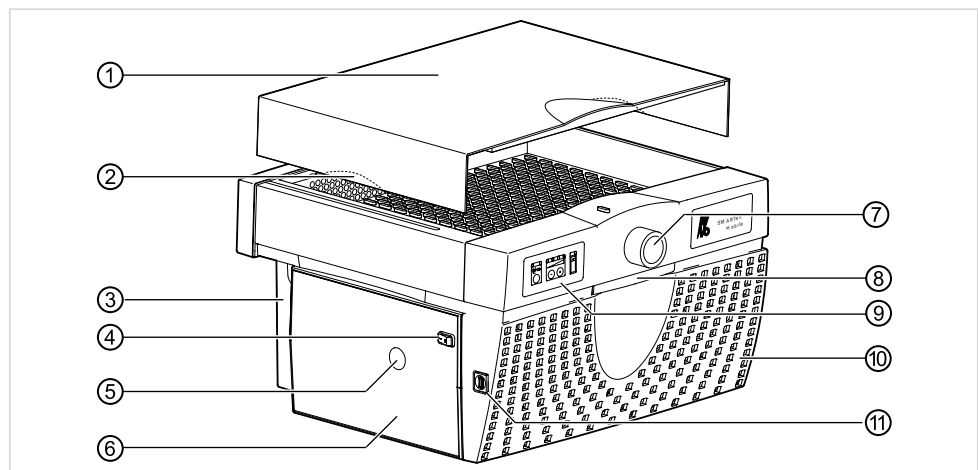
- ① Motor filter box
- ② Suction hose, dia. 42 mm with connection sleeves
- ③ Power cable
 - ENMat. no. 1.001.8593
 - GBMat. no. 0.692.6901
 - CHMat. no. 1.001.8594
 - USMat. no. 1.001.8595
 - OFFMat. no. 1.001.8598
- ④ Connection line
 - ENMat. no. 1.002.2525
 - GBMat. no. 1.002.2529
 - CHMat. no. 1.002.2527
 - USMat. no. 1.002.2528
 - OFFMat. no. 1.002.2530
- ⑤ Replacement filter bag
- ⑥ Instructions for useMat. no. 1.001.9703

3.2 Device parts



SMARTair plus device parts

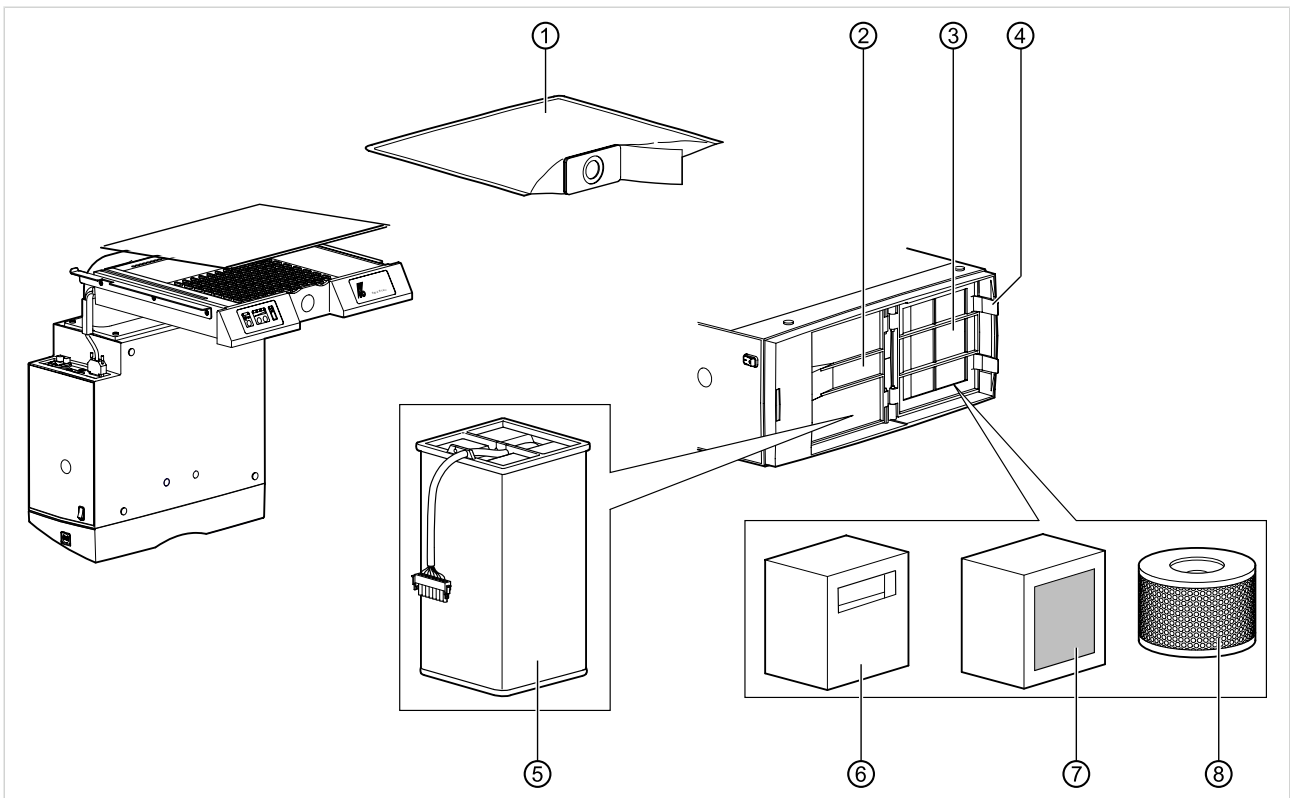
- | | |
|----------------------|----------------------------|
| ① Cover | ⑦ Grip bar |
| ② Rating plate | ⑧ Intake opening |
| ③ Connections | ⑨ Control panel |
| ④ Power switch | ⑩ Filter box |
| ⑤ Mains switch | ⑪ Filter box housing cover |
| ⑥ Housing cover lock | |



SMARTair plus mobile device parts

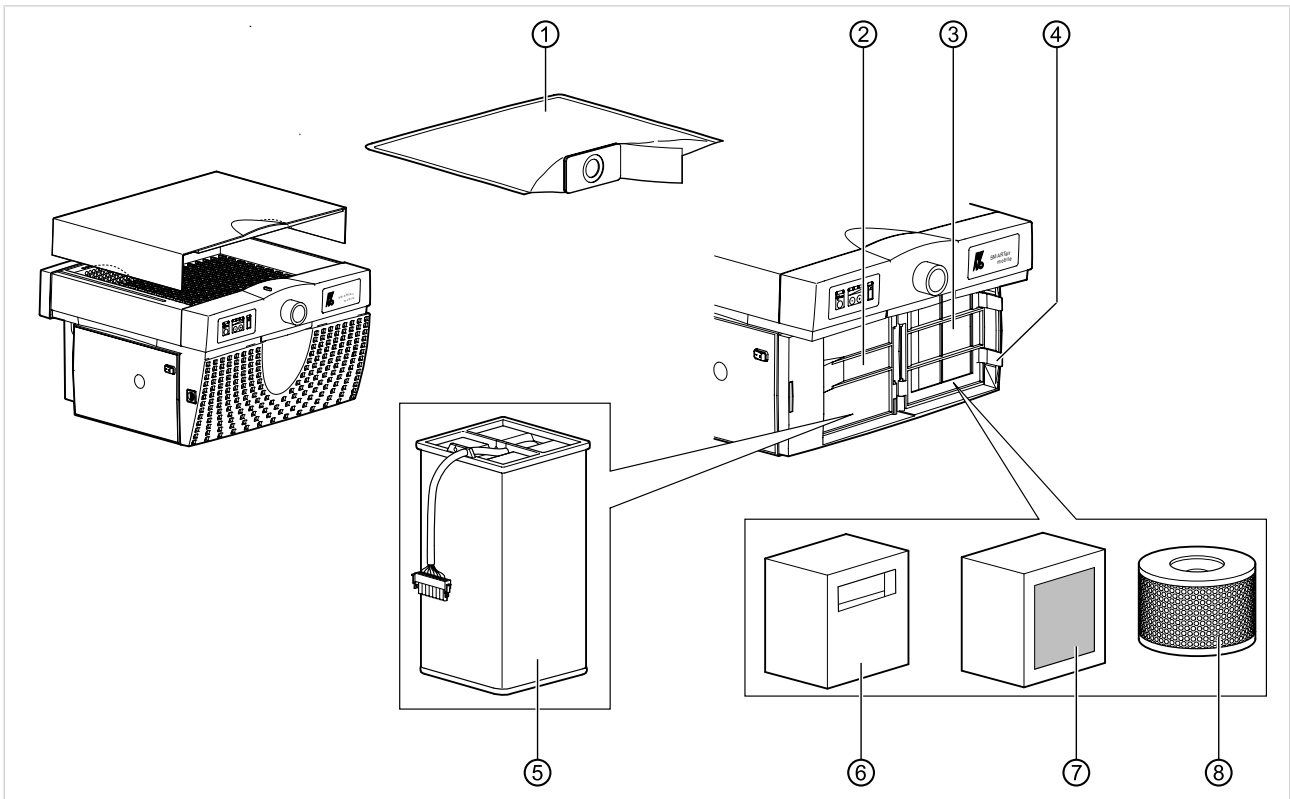
- | | |
|----------------|----------------------------|
| ① Cover | ⑦ Intake opening |
| ② Grip bar | ⑧ Grip bar |
| ③ Connections | ⑨ Control panel |
| ④ Mains switch | ⑩ Filter box housing cover |
| ⑤ Power switch | ⑪ Housing cover lock |
| ⑥ Filter box | |

3.3 Filter box



SMARTair plus filter box

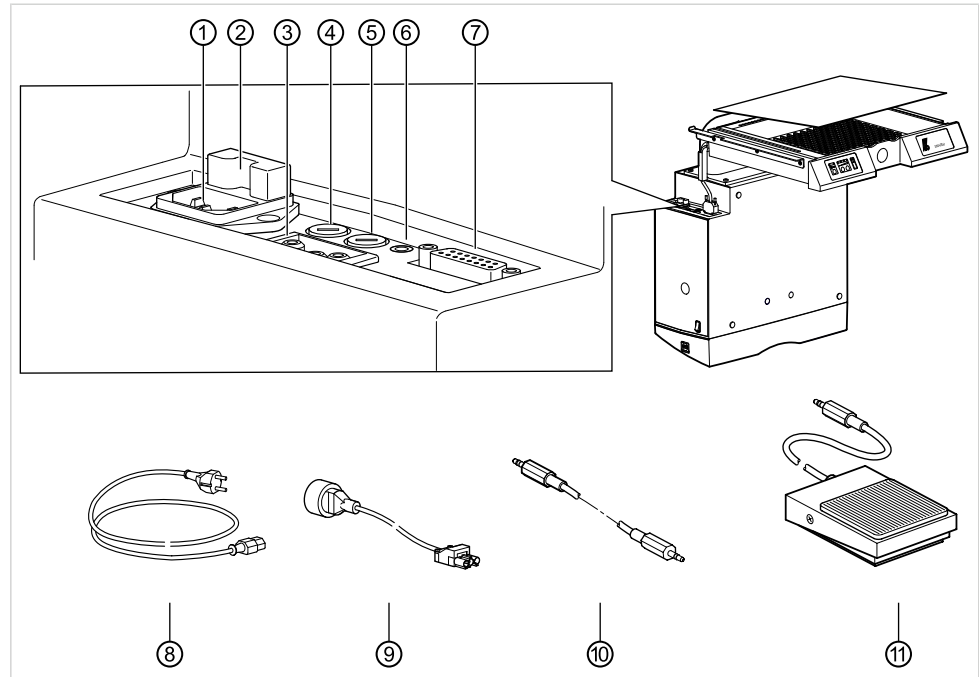
- ① Filter bag
- ② Fan box flap
- ③ Filter flap
- ④ Filter box snaplocks
- ⑤ Fan box
- ⑥ Muffler element
- ⑦ Adsorption filter (optional)
- ⑧ Ultrafine filter (optional)



SMARTair plus mobile filter box

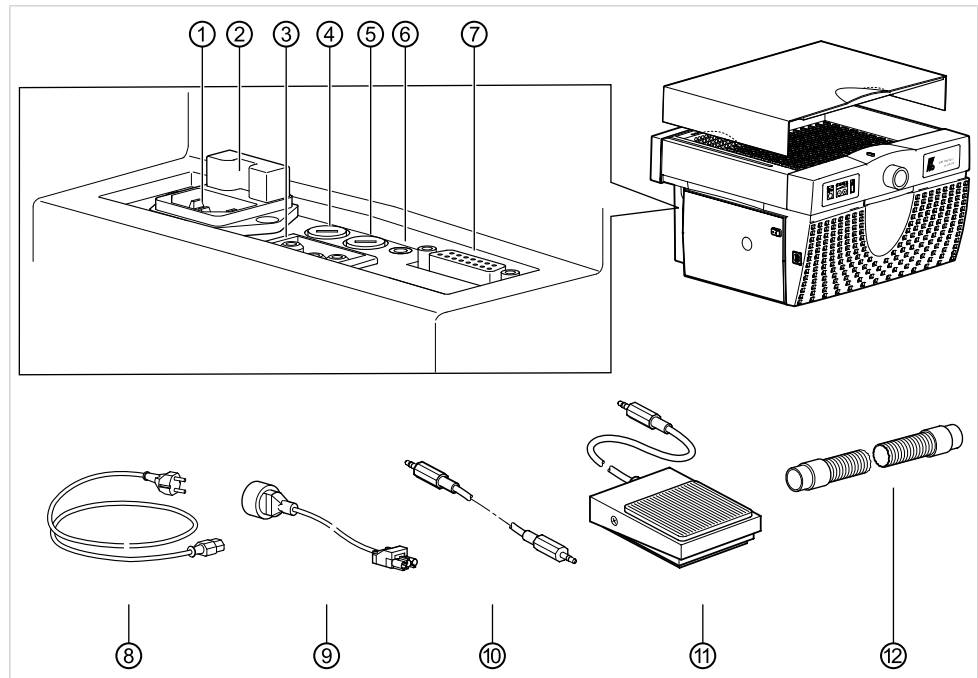
- ① Filter bag
- ② Fan box flap
- ③ Filter flap for SMARTair mobile
- ④ Filter box snaplocks
- ⑤ Fan box
- ⑥ Muffler element
- ⑦ Adsorption filter (optional)
- ⑧ Ultrafine filter (optional)

3.4 Connections



SMARTair plus connectors

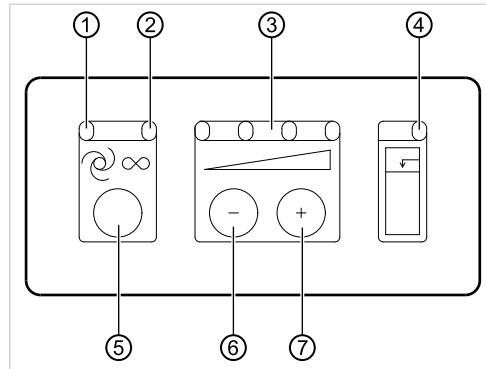
- | | |
|--|--|
| ① Socket for power cable connector | ⑦ Sub-D socket for connection to membrane keyboard |
| ② Fuse for line input (10 A) | ⑧ Power cable (country-specific) |
| ③ Socket for connection to working unit | ⑨ Connecting cable to working unit (country-specific) |
| ④ Fuse for fan stage 2 (3.15 A) | ⑩ Control cable for K-Control / K-Control TLC (optional) |
| ⑤ Fuse for fan stages 1 through 4 (4 A) | ⑪ Foot-operated button (optional) |
| ⑥ Socket for control cable to working unit (for ⑩) | |



SMARTair plus mobile connectors

- | | |
|--|--|
| ① Socket for power cable connector | ⑦ Sub-D socket for connection to membrane keyboard |
| ② Fuse for line input (10 A) | ⑧ Power cable (country-specific) |
| ③ Socket for connection to working unit | ⑨ Connecting cable to working unit (country-specific) |
| ④ Fuse for fan stage 2 (3.15 A) | ⑩ Control cable for K-Control / K-Control TLC (optional) |
| ⑤ Fuse for fan stages 1 through 4 (4 A) | ⑪ Foot-operated button (optional) |
| ⑥ Socket for control cable to working unit | ⑫ Suction hose |

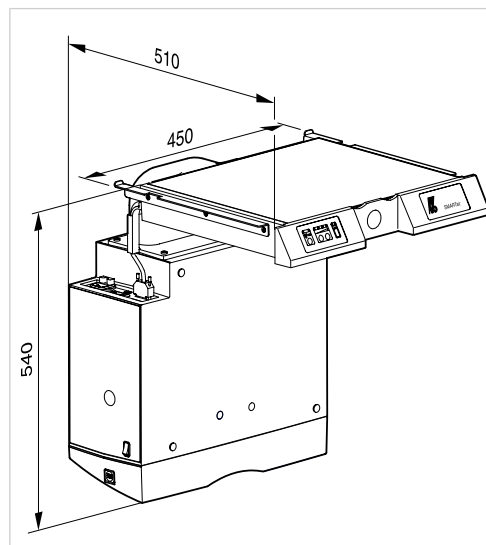
3.5 Control panel



- ① LED automatic mode (green)
- ② LED continuous operation (green)
- ③ LEDs suction level display (green)
- ④ LED display: "Filter full" (red)
- ⑤ "Automatic" key
- ⑥ "Minus" key (reduction of the extraction level)
- ⑦ "Plus" key (increase of the extraction level)

3.6 Technical data

3.6.1 Technical data on the SMARTair plus



Package for SMARTair plus

Length	approximately 668 mm
Width	approximately 409 mm
Height	approximately 510 mm
Weight with packaging	20 Kg
Content without packaging	18 Kg

Dimensions and weight of the SMARTair plus

Width	450 mm
Depth	510 mm
Height	540 mm
Weight	Approx. 17.5 kg

Housing

Degree of soiling	2
Class of protection	I

Electrical system

Nominal voltage	100 / 115 / 230 V
Nominal frequency	50/60 Hz
Permissible leakage current	max. 0.5 mA
Mains input fuse	100 to 230 V T 10 A (H) / 250 V
Fan fuse for levels 1 to 4	T 4 A (L) / 250 V
Fan fuse for level 2	T 3.15 A (L) / 250 V
Unit input	max. 1000 W
Connection value for the unit	max. 500 W
Mode	Continuous operation
Overvoltage category	II

Output

Suction power	15 to 30 l/s
Filter surface	0.58 m ²
Vacuum	max. 122 mbar

Noise emissions

Suction level I	53 dB (A)
Suction level II	56 dB (A)
Suction level III	58.5 dB (A)
Suction level IV	61 dB (A)

Environmental conditions

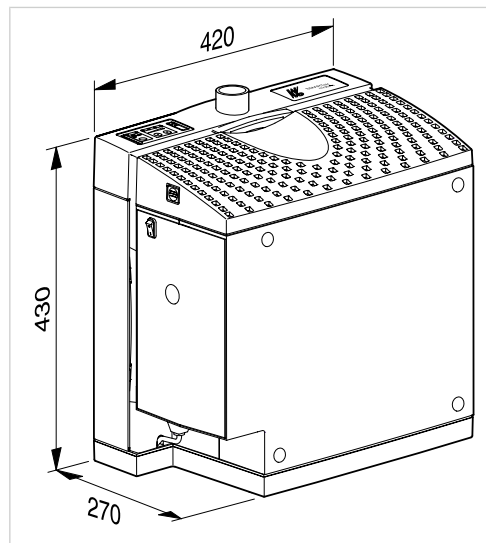
Permissible temperature range	+5 to +40°C
Permissible relative humidity	max. 80 %
Permissible elevation above sea level	max. 2000 m above sea level

Permissible mains voltage fluctuation	max. $\pm 10\%$ of the nominal voltage
Permissible in enclosed rooms	

Storage and transportation conditions

Ambient temperature	-20 to +55°C
Relative humidity	5% to 95% non-condensing
Air pressure	700 to 1600 hPa

3.6.2 Technical data for the SMARTair plus mobile



Package for the SMARTair plus mobile

Length	approximately 668 mm
Width	approximately 409 mm
Height	approximately 510 mm
Weight with packaging	20.4 Kg
Weight without packaging	18.4 Kg

Dimensions and weight of the SMARTair plus mobile

Width	420 mm
Depth	270 mm
Height	430 mm
Weight	Approx. 17.9 kg

Housing

Degree of soiling	2
Class of protection	I

Electrical system

Nominal voltage	100 / 115 / 230 V
Nominal frequency	50/60 Hz
Permissible leakage current	max. 0.5 mA
Mains input fuse	100 to 230 V T 10 A (H) / 250 V
Fan fuse for levels 1 to 4	T 4 A (L) / 250 V
Fan fuse for level 2	T 3.15 A (L) / 250 V
Unit input	max. 1000 W
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Suction level II	56 dB (A)
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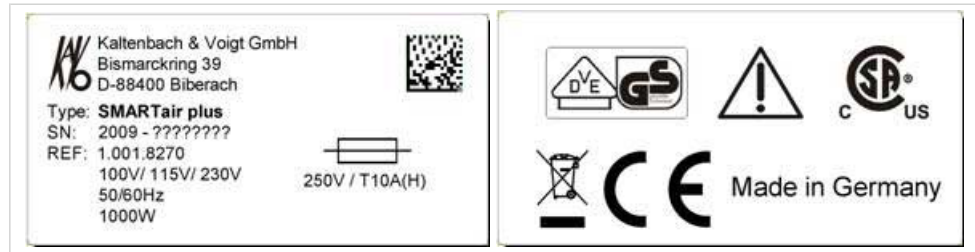
Environmental conditions

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Permissible mains voltage fluctuation	max. ± 10 % of the nominal voltage
Permissible in enclosed rooms	

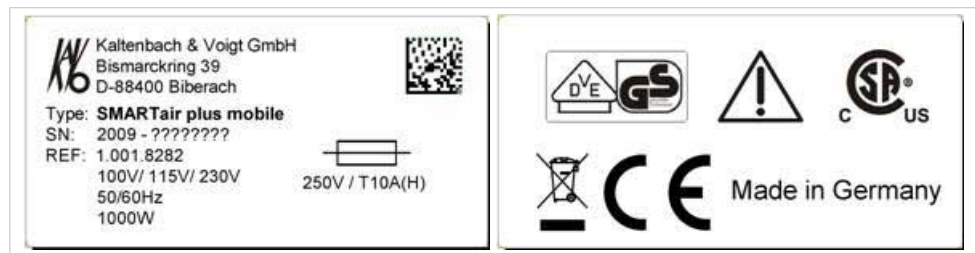
Storage and transportation conditions

Ambient temperature	-20 to +55°C
Relative humidity	5% to 95% non-condensing
Air pressure	700 to 1600 hPa

3.7 Identification plates



SMARTair plus



SMARTair plus mobile


Type	Device type
SN	Year of manufacture - serial number
REF	Material number
	CE mark
	VDE mark
	CSA mark
	Disposal instructions, proper use
	GS mark
	Follow the Instructions for use

3.8 Dust test

	GS/BG certificate no.: 0605011
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4 Assembly

4.1 Location

	⚠ CAUTION
	Exceeding the permissible thresholds. ▶ Make sure that the maximum return airflow is 50% of the fresh air flow.

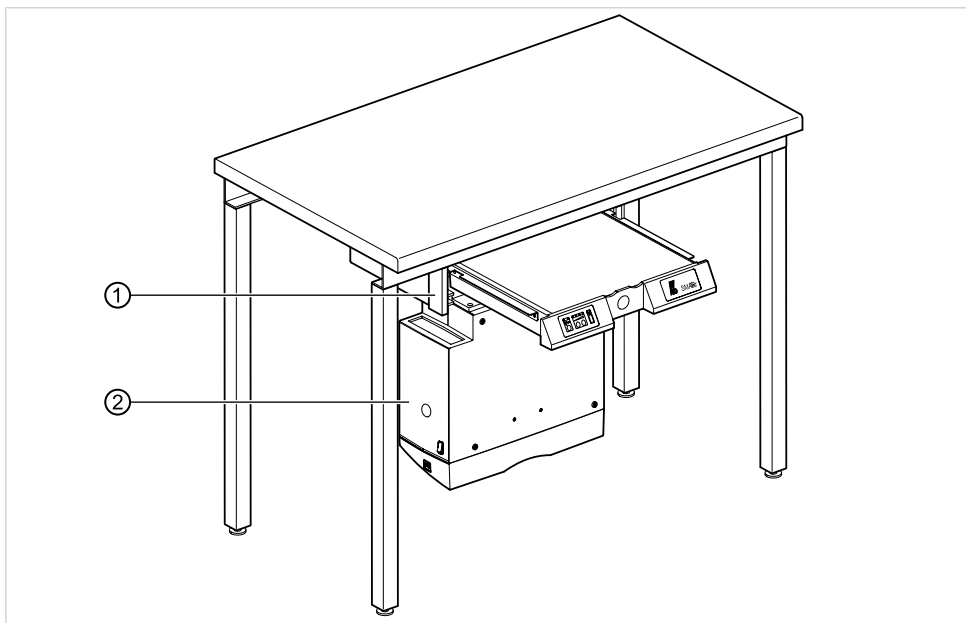
Calculation of the fresh airflow: $V_r \times L_w$

V_r = room volume

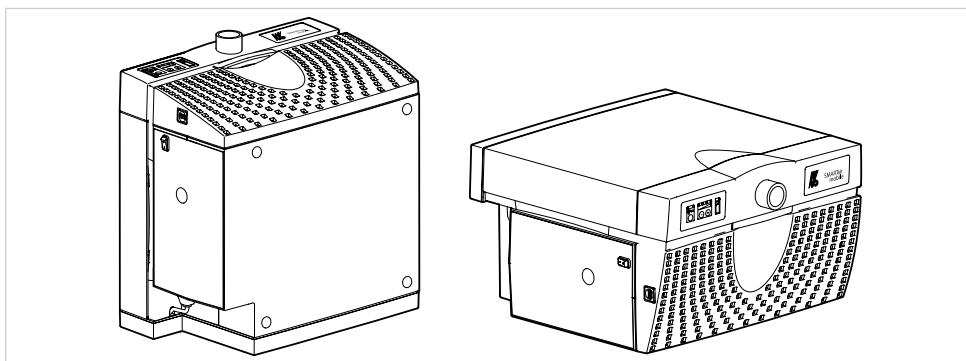
L_w = air exchange

Without any special ventilation measures: $L_w = 1\text{h}^{-1}$

The SMARTair plus vacuum ② is designed for installation in EWL frames ① or an EWL system base 5.



The SMARTair plus mobile vacuum can be set up either standing or lying.





Note

Close the intake opening with adhesive tape during transport.

- ▶ Make sure that the exhaust outlet is not blocked when you set up the unit.

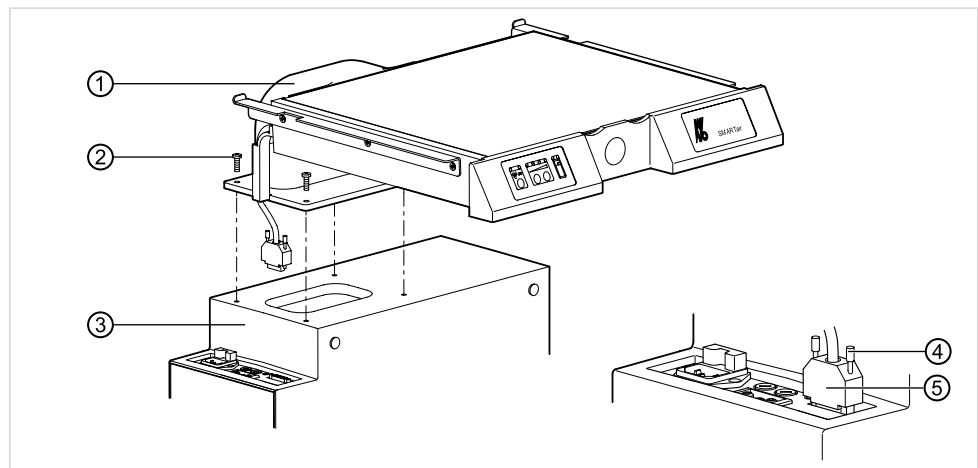
4.2 Installing the SMARTair plus



Note

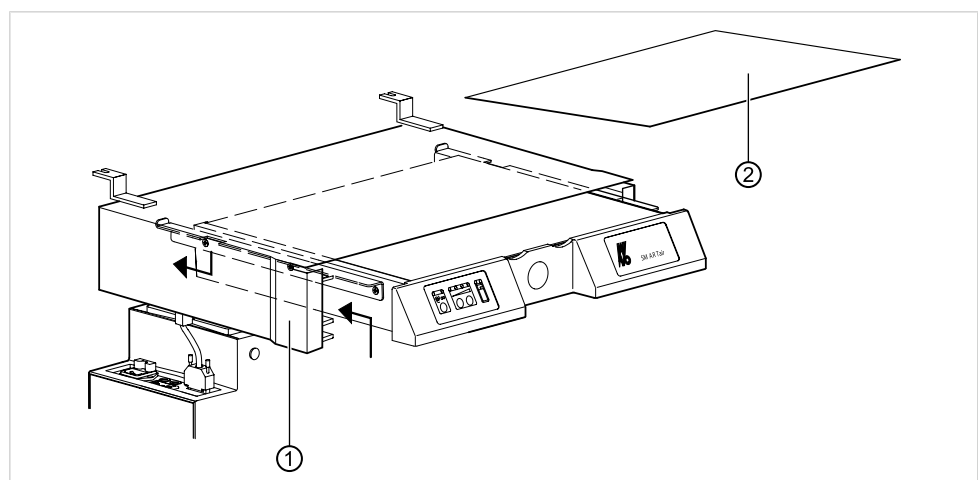
Repairs and service tasks may only be performed by qualified professionals except for the activities described in these instructions for use.

Connect the motor housing to the flange



- ▶ Screw the motor housing ③ and flange ① together with four screws ②.
- ▶ Insert the Sub-D connector ⑤ into the provided socket in the housing, and affix it with two screws ④.


Insert the SMARTair plus into the frame





- ▶ Remove the cover ② of the SMARTair plus.

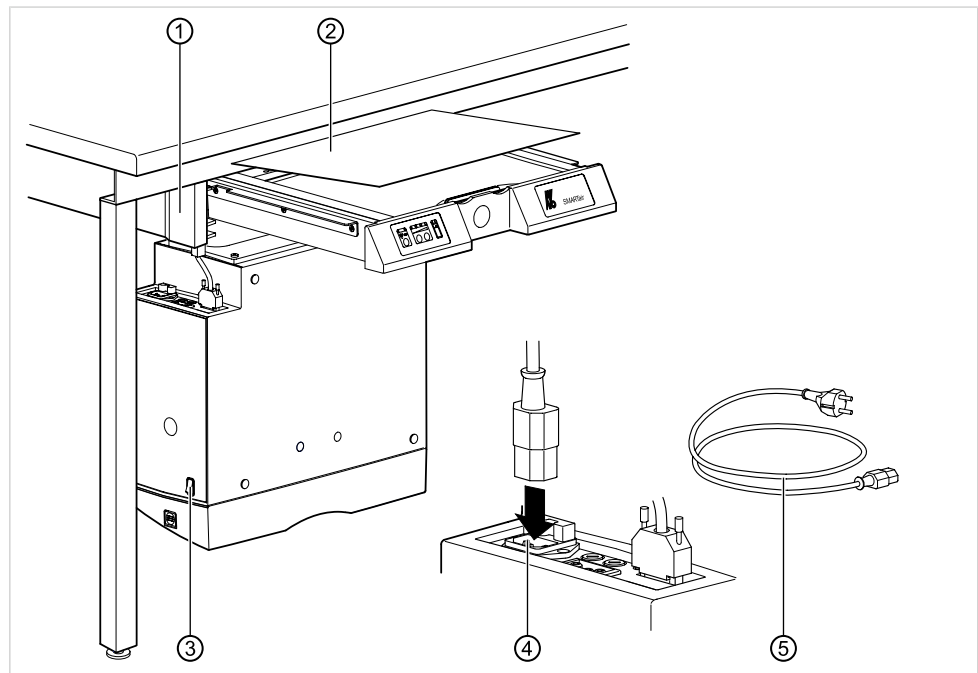
- ▶ Insert the SMARTair plus into the EWL frame ①.

Install the power cable

	⚠ CAUTION
	<p>Product damage from incorrect power cable. Destruction of electrical components.</p> <ul style="list-style-type: none"> ▶ Before connecting, check if the provided power cable is the right one for the mains connection.

	⚠ CAUTION
	<p>Product damage from incorrectly adjusting the tension. Destruction of electrical components.</p> <ul style="list-style-type: none"> ▶ Adjust the voltage input for the product to the existing mains voltage.

	⚠ CAUTION
	<p>Damage from overvoltage. The product becomes damaged.</p> <ul style="list-style-type: none"> ▶ The nominal voltage and frequency must be the same as that on the rating plate.



- ▶ Switch the power switch ③ to "Off".
- ▶ Insert the provided power cable ⑤ into the provided connection ④ of the SMARTair plus, and insert it into the provided, easily reachable, properly installed (grounded) power socket. If needed, use an extension cord.
- ▶ Run the power cable ⑤ so that the SMARTair plus can be pulled out to the stop without unplugging the power cable.
- ▶ Place the cover 2 on the SMARTair plus.

- ▶ Insert the SMARTair plus all the way into the frame 1.

Connecting the SMARTair plus to the unit



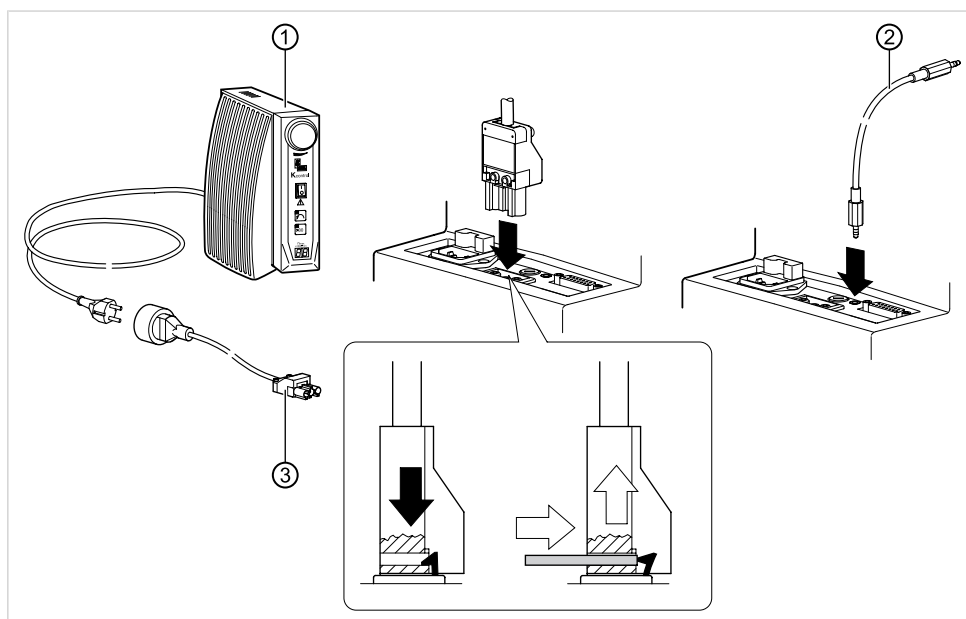
Note

When using the control cable (**Mat. no. 1.000.7198**), do not run a connecting line. In addition, the response sensitivity must not be adjusted.



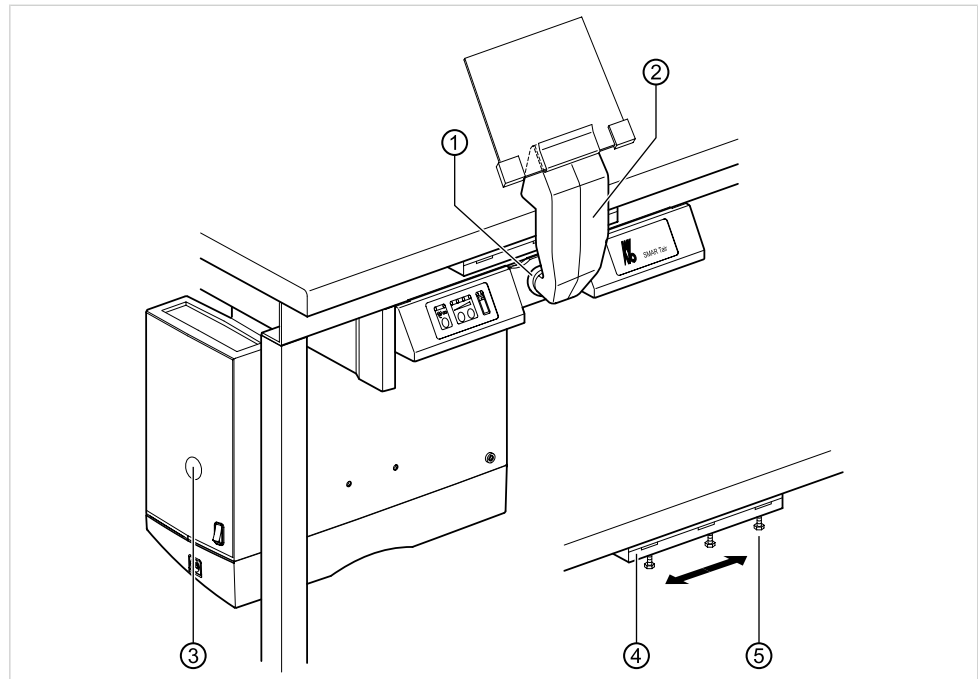
Note

Only units with a maximum 500 W output may be plugged in.



- ▶ Connect units without a control output ① via a connecting line ③ to the SMARTair plus.
- or
- ▶ Connect units (such as the K-Contol) with a control output (3.5-mm socket) via a control cable (**Mat. no. 1.000.7198**) ② to the SMARTair plus.

Affix the extraction hood



- ▶ Insert the extraction hood ② into the intake opening ① so that the intake opening is completely covered by the rubber lip.
- ▶ To adjust it, loosen the screws ⑤ in the connector ④.
- ▶ Move the connector ④ to the side, and retighten the screws ⑤.
- ▶ Adjust the voltage selection switch ③ to the national mains voltage.

4.3 Installing the SMARTair plus mobile



Note

Repairs and service tasks may only be performed by qualified professionals except for the activities described in these instructions for use.

Install the power cable

	⚠ CAUTION
	<p>Product damage from incorrect power cable. Destruction of electrical components.</p> <ul style="list-style-type: none"> ▶ Before connecting, check if the provided power cable is the right one for the mains connection.

	⚠ CAUTION
	<p>Product damage from incorrectly adjusting the tension. Destruction of electrical components.</p> <ul style="list-style-type: none"> ▶ Adjust the voltage input for the product to the existing mains voltage.

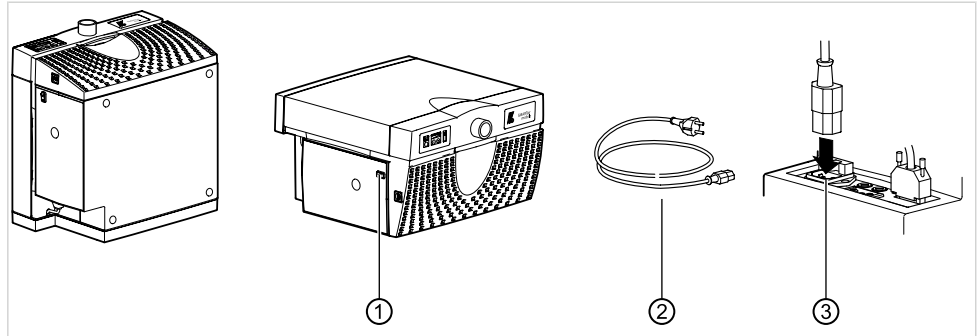


⚠ CAUTION

Damage from overvoltage.

The product becomes damaged.

- ▶ The nominal voltage and frequency must be the same as that on the rating plate.



- ▶ Set up the SMARTair plus mobile at the provided location.
- ▶ Switch the power switch ① to "Off".
- ▶ Insert the provided power cable 2 into the provided connection 3 of the SMARTair plus, and insert it into the provided, easily reachable, properly installed (grounded) power socket.

Connecting the SMARTair plus to the unit



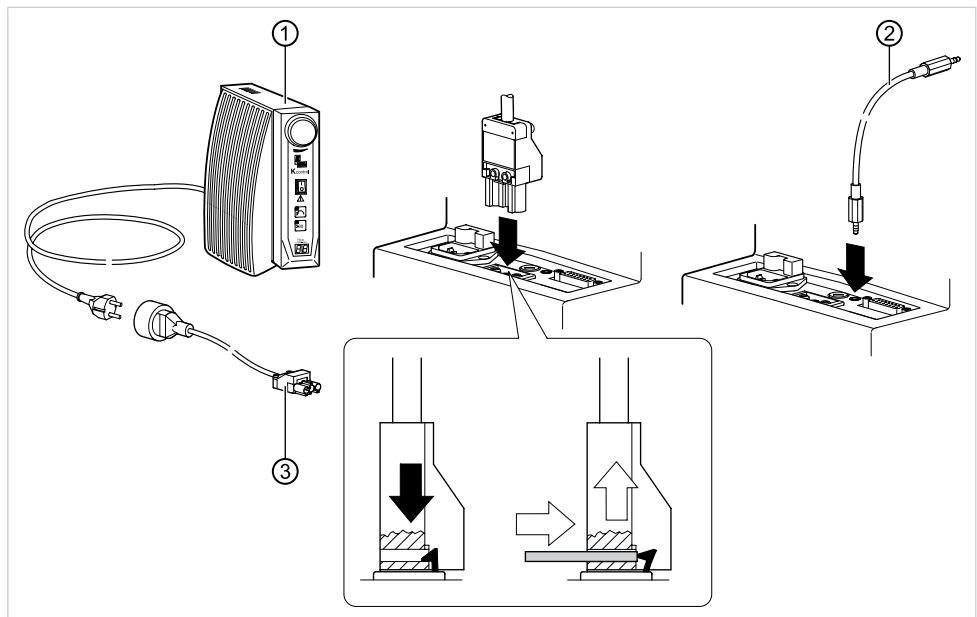
Note

When using the control cable (**Mat. no. 1.000.7198**), do not run a connecting line. In addition, the response sensitivity must not be adjusted.



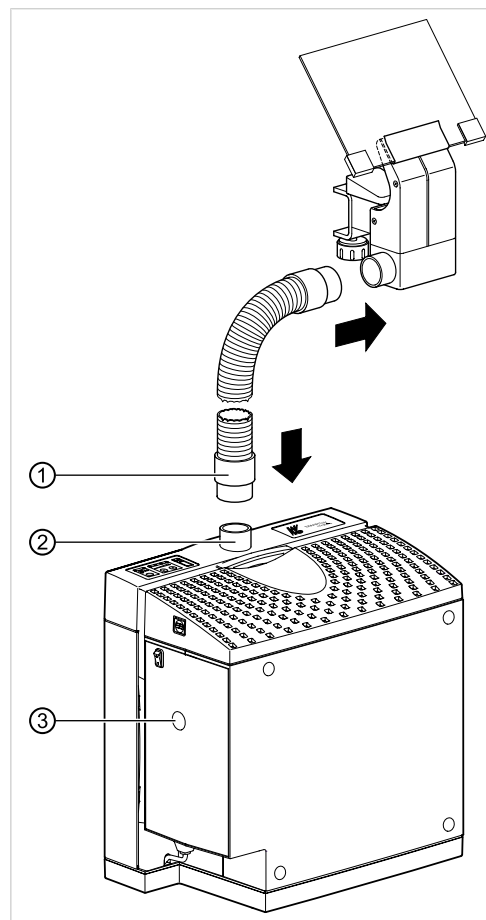
Note

Only units with a maximum 500 W output may be plugged in.



- ▶ Connect units without a control output 1 via a connecting line 3 to the SMARTair plus.
- or
- ▶ Connect units (such as the K-Control) with a control output (3.5 mm socket) via a control cable () 2 to the SMARTair plus mobile.

Affix the extraction hood



- ▶ Place the connecting hose ① on the intake connection ② of the SMARTair plus mobile.
- ▶ Connect the hose to the extraction hood.
- ▶ Adjust the voltage selection switch ③ to the national mains voltage.

5 First use

- ▶ Check that the rated voltage and rated frequency match the rating plate.
- ▶ Check if the voltage selection switch is set to the national voltage.

See also:

4.2 Installing the SMARTair plus, Page 23

4.3 Installing the SMARTair plus mobile, Page 26

5.1 Check the filter bag of the SMARTair plus



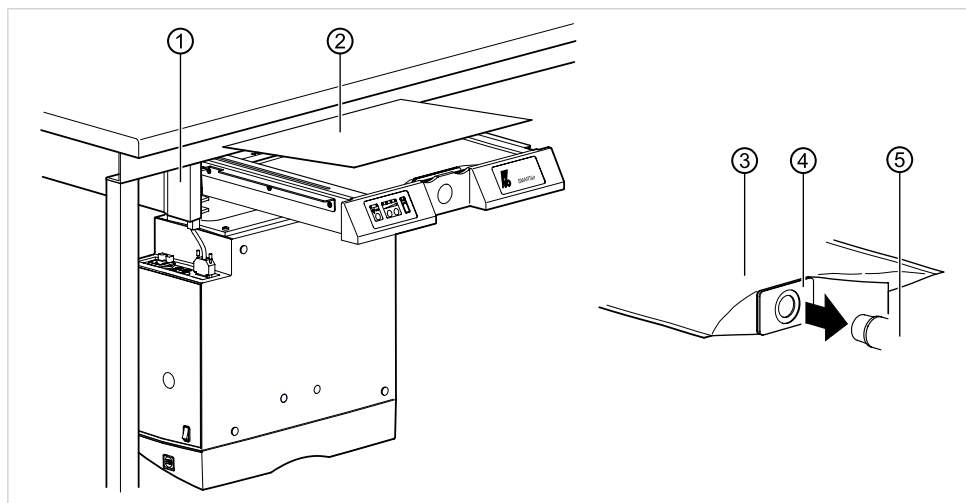
Note

The unit may be only used when the filter bag is inserted. only original filter bags may be used.



Note

Do not damage the filter bag.



- ▶ Pull out the SMARTair plus from the frame ① until the stop, and remove the cover ②.
- ▶ Check to see if the filter bag ③ is firmly seated. The filter bag with the cardboard frame ④ must be shoved onto the filter connector ⑤.
- ▶ Attach the cover ②, and push the SMARTair plus all the way into the frame ①.

5.2 Check the filter bag of the SMARTair plus



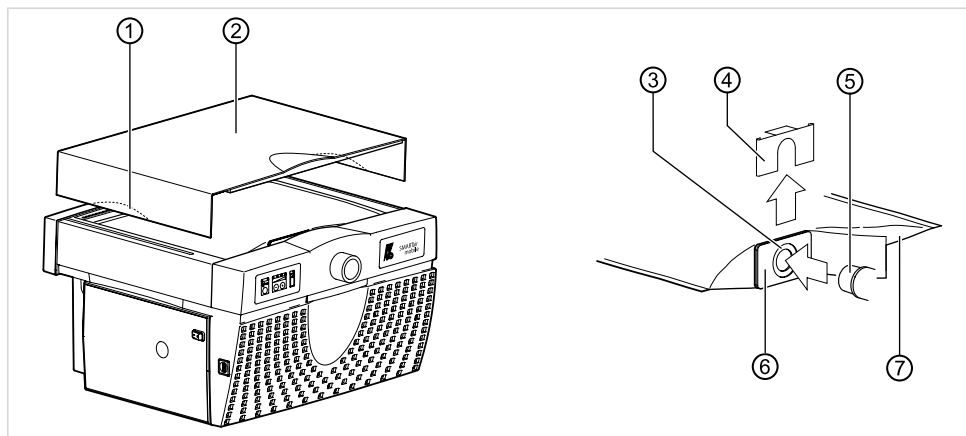
Note

The unit may be only used when the filter bag is inserted. only original filter bags may be used.



Note

Do not damage the filter bag.



- ▶ Undo the snap locks, and slightly pull apart the grip bars ①.
- ▶ Remove the housing cover ②.
- ▶ Check to see if the filter bag is firmly seated.
The filter holder ③ must engage in the cut in the filter connector ⑤, and the cardboard frame ⑥ of the filter bag ⑦ must be held against slipping with the holder ④.
- ▶ Place the housing cover ② on the filter box and snap it in place.

6 Operation



Note

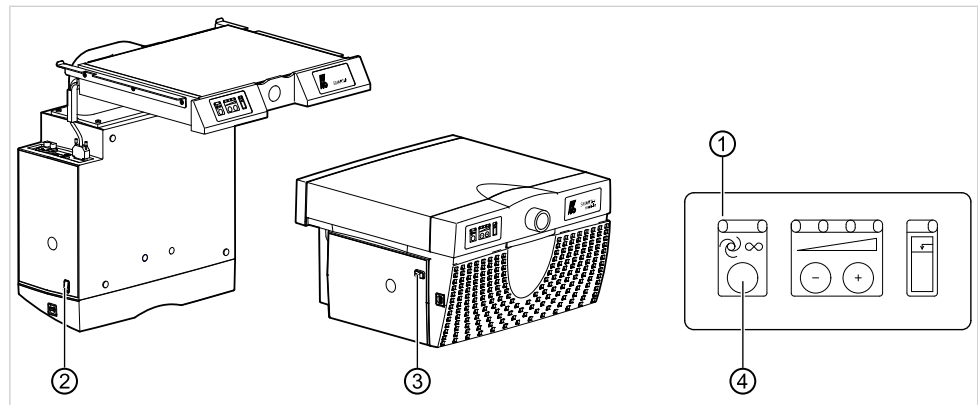
The distance between the item generating the dust (such as a cutter) and the intake opening may not exceed 50 mm.

6.1 Automatically operate the SMARTair plus / SMARTair plus mobile



Note

Automatic mode is recommended for units that have an electrical connection.



Set the SMARTair plus / SMARTair plus mobile to automatic

- ▶ Switch the power switch 2 or 3 to "On".
- ▶ Press the "Automatic" ④ key until the "Automatic" LED ② shines.

In the "Automatic" position, the SMARTair plus/SMARTair plus mobile is automatically turned on and off together with the connected unit.

Turn the SMARTair plus / SMARTair plus mobile on and off

- ▶ Turn the unit on.

The SMARTair plus/SMARTair plus mobile also automatically runs.

- ▶ Turn off the unit.

The SMARTair plus/SMARTair plus mobile runs for a few seconds, and then independently shuts off.

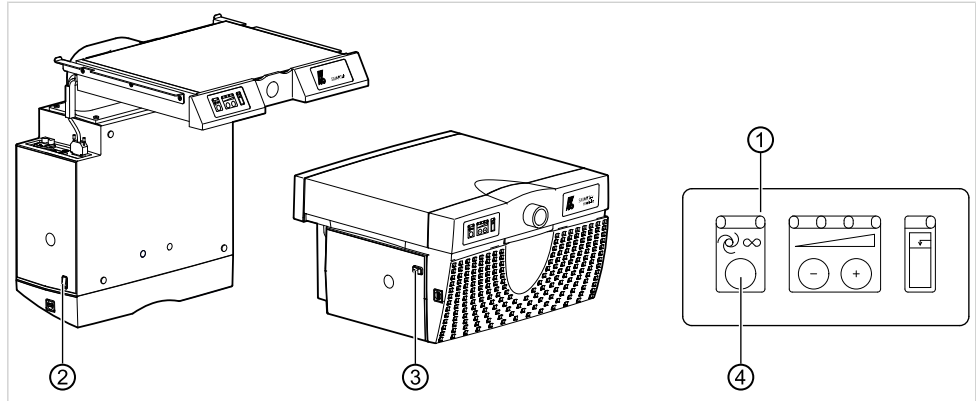
See also: 6.5 Setting the response sensitivity, Page 35

6.2 Manually operate the SMARTair plus / SMARTair plus mobile



Note

Units without an electrical connection (such as turbine systems) must be operated manually.



Set up the SMARTair plus / SMARTair plus mobile for manual operation

- ▶ Switch the power switch ② or ③ to "On".
- ▶ Press key ④ until the "Continuous operation" LED ① shines.

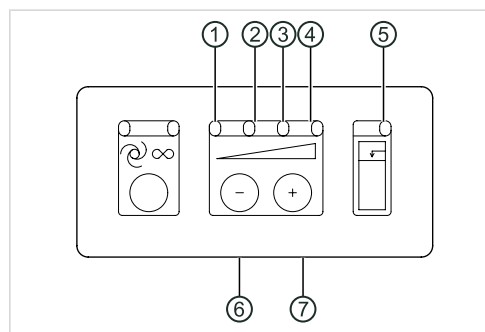
Turn the SMARTair plus / SMARTair plus mobile on and off

- ▶ To turn the unit on, press power switch ② or ③ One.
- or
- ▶ To turn the unit on and off, press the "Automatic" ④ key.

The "continuous operation" LED shines: the SMARTair plus / SMARTair plus mobile is turned on.

The "Automatic operation" LED shines: the SMARTair plus / SMARTair plus mobile is turned off.

Display of suction



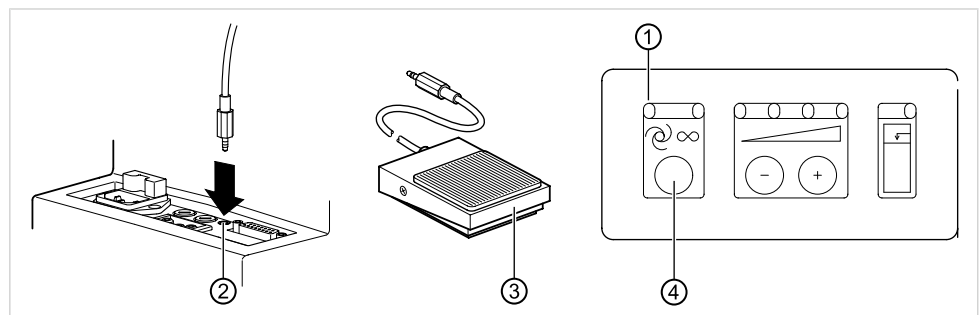


Note

When the suction decreases from soiling or a full filter, the suction automatically switches to the set suction. Only when the suction limit is reached does the "Filter full" ⑤ LED shine.

Display	Suction power	Malfunction	Action Step
The "Suction level display" LEDs ① to ③ shine.	The extraction level is sufficient.	No malfunction	Reduce the extraction level by pressing the "Minus" key ⑥. Increase the extraction level by pressing the "Plus" key ⑦.
The "Suction level display" LEDs ① to ④ shine.	The maximum extraction level has been reached.	No malfunction	Reduce the extraction level by pressing the "Minus" key ⑥.
The LED "Filter full" ⑤ flashes.	The suction threshold is almost reached.	The filter bag or ultrafine filter is almost full.	Change the filter bag or ultrafine filter.
		The suction hose or suction site is dirty.	Clean the suction hose or suction site.
The LED "Filter full" ⑤ shines.	The suction threshold has been reached.	The filter bag or ultrafine filter is almost full.	Change the filter bag or ultrafine filter.
		The suction hose or suction site is dirty.	Clean the suction hose or suction site.

6.3 Operate the SMARTair plus / SMARTair plus mobile with the foot switch



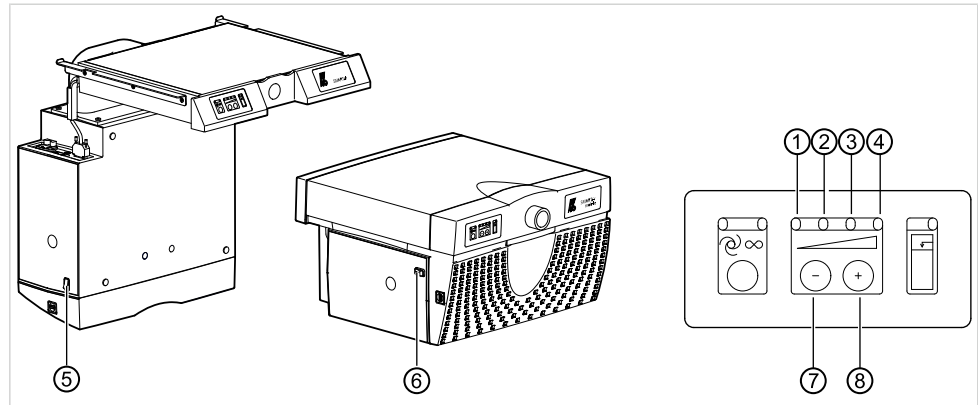
Connect the foot switch

- ▶ Inserted the cable of the foot switch ③ into the socket for the control line ②.

Turn the SMARTair plus / SMARTair plus mobile on and off

- ▶ Press the "Automatic" ④ key until the "Automatic" LED ① shines.
- ▶ Turn the SMARTair plus / SMARTair plus mobile on and off using the foot switch ③.

6.4 Adjust the suction levels



- ▶ Press the keys ⑦ and ⑧ to adjust the suction levels ① to ④.

6.4.1 Save the default suction level (as of software version 2)



Note

As of software version 2.0, the suction level can be saved and is retained after the SMARTair plus (mobile) is turned off.

Identifying the software version and device features

- ▶ Press the power switch ⑤ or ⑥ to turn on the device.

After two seconds, the LEDs ① to ③ show the software version and device features.

Number of flashes	LED 1	LED2	LED 3
Once	Software version 1	The device is connected to 50 Hz	The flow sensor is recognized (SMARTair Plus)
Twice	Software version 2	The device is connected to 50 Hz	The flow sensor is recognized (SMARTair Plus)
None		The device is connected to 60 Hz	The flow sensor is not recognized (SMARTair standard)

Activate the suction level default

- ▶ Hold down the "Plus" ⑧ key, and turn the power switch ⑤ or ⑥ on.

The LEDs ① to ④ flash.

- ▶ Release the "Plus" ⑧ key.

You can now save the suction level.

- ▶ Turn off the power switch ⑤ or ⑥, and turn it on after two seconds.

The selected suction level is saved.

Deactivate the default suction level

- ▶ Hold down the "Minus" ⑦ key, and turn the power switch ⑤ or ⑥ on.

The LEDs ① to ④ flash.

- ▶ Release the "Minus" ⑦ key.

You can now save the suction level.

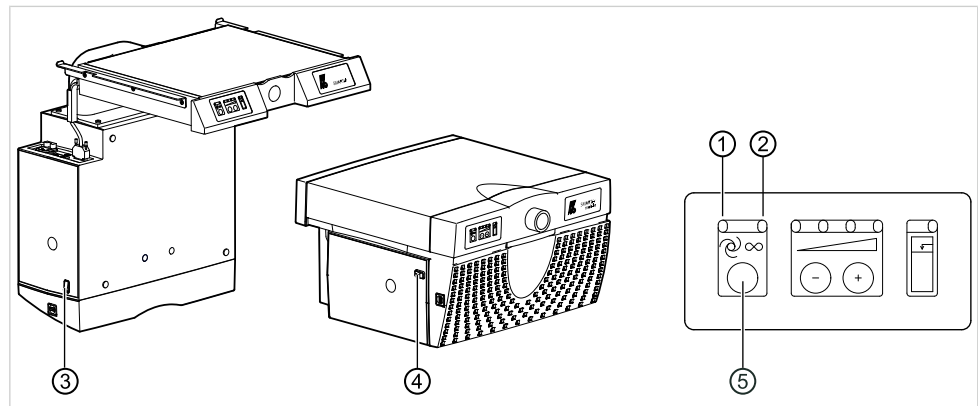
- ▶ Turn off the power switch ⑤ or ⑥, and turn it on after two seconds.

The selected suction level is saved.

6.5 Setting the response sensitivity

Prepare the unit

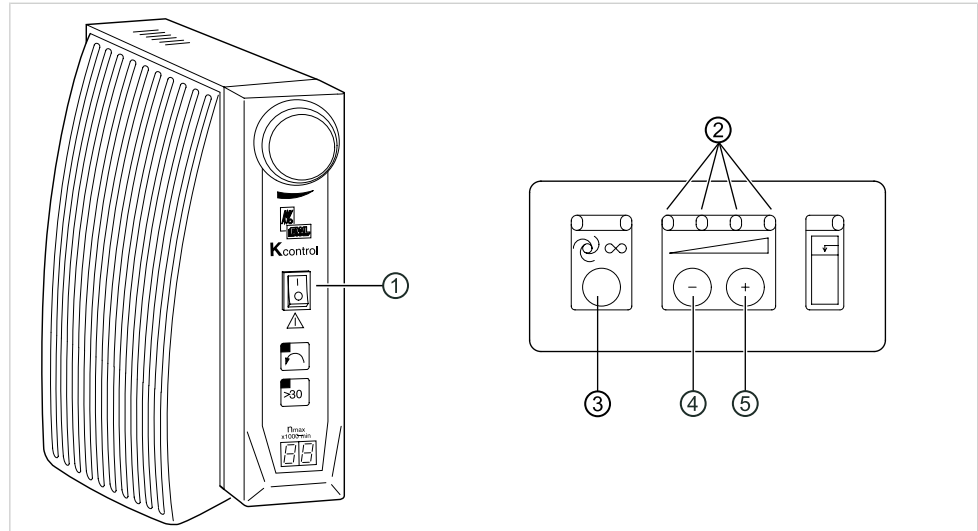
The response sensitivity is set in the "Automatic" position.



- ▶ Switch the power switch ③ or ④ to "On".
- ▶ Hold down the "Automatic" key ⑤ (for about three seconds), until the LEDs ① and ② flash.

The unit is now in "Setting mode".

Setting and saving the response sensitivity



- ▶ Turn on the power switch on the control unit.
- ▶ Start the working device at a speed of 5,000 to 7,000 rpm and keep it running while performing the setting.

Case 1: LEDs do not light up

- ▶ Briefly press the "Plus" ⑤ button several times until all LEDs ② light up.

Case 2: All LEDs light up

- ▶ Briefly press the "Minus" ④ button several times until all LEDs ② go off.
- ▶ Briefly press the "Plus" ⑤ button several times until all LEDs ② light up.
- ▶ Press the "Automatic" ③ button.

The values are saved.

The unit is in "normal mode" again.

7 Cleaning and servicing

To guarantee constant readiness for use and maintenance of value of the KaVo product, the recommended servicing must be done.

This device contains harmful dust. Only professionals and wearing the appropriate protective equipment may empty and service the device including emptying the dust collector. Only original KaVo filters may be used.

Precautionary measures while servicing:

- Before removing the dust extraction system from the contaminated area, it should be aspirated or wiped clean, and the openings on the untreated air side must be sealed.
Before removing the dust extraction system from the contaminated area, it should be aspirated or wiped clean, and the openings on the untreated air side must be sealed.
 - Accessory parts (hoses, etc.) are to be considered contaminated and treated correspondingly.
- Use suitable personal protective equipment.
- If possible, use a room with filtered automatic ventilation.
- Cleaning the servicing area.
 - All contaminated parts that are not sufficiently cleaned during repairs must be disposed of in sealable bags.
- They must be disposed of in accordance with valid regulations.

7.1 Cleaning



Note

Liquids inside the device can cause malfunctions.
When cleaning, make sure that no liquid enters the device.

Cleansers:

- Surfaces that are good is new: use water and nonabrasive, mild cleansers.
- Surfaces with strongly adhering contaminants: use EWL plastic cleaner (Mat. no. 0.611.0030)

7.2 Servicing

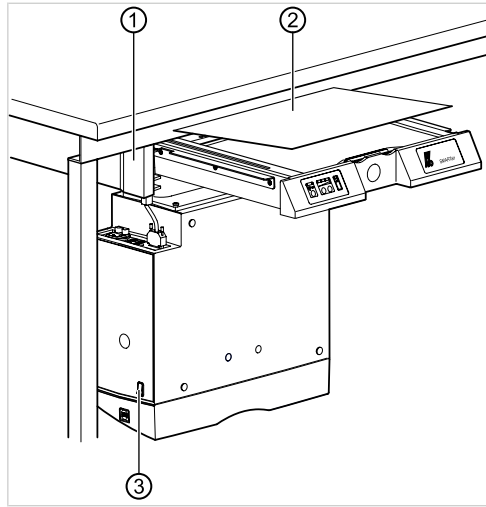
7.2.1 Exchange the filter bag of the SMARTair plus



Note

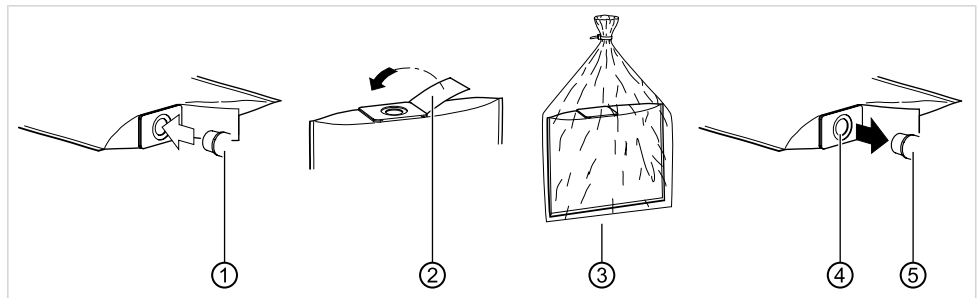
To keep the fan motor from being damaged, the filter chamber must be checked for dust and cleaned if necessary before inserting a new filter bag.

Prepare the unit



- ▶ Switch the power switch ③ to "Off".
- ▶ Pull out the SMARTair plus from the frame ① until the stop, and remove the cover ②.

Exchanging the filter bag



- ▶ Carefully remove the filter bag from the filter connector ①.
- ▶ Seal the filled filter bag with the adhesive tab ② and throw it away ③.
- ▶ Check if the filter compartment contains dust and clean if necessary.
- ▶ Shove the new filter bag with the cardboard frame ④ onto the filter connector ⑤, and check to see if it is firmly seated.
- ▶ Remount the cover.
- ▶ Completely insert the SMARTair plus into the frame or system base.

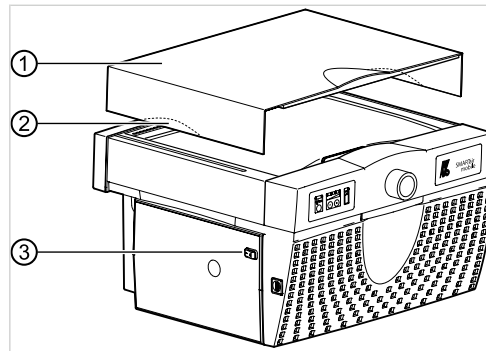
7.2.2 Exchange the filter bag of the SMARTair plus mobile



Note

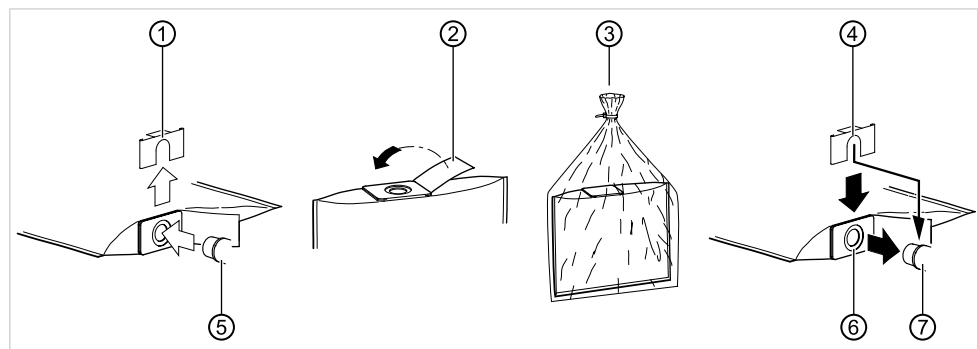
To keep the fan motor from being damaged, the filter chamber must be checked for dust and cleaned if necessary before inserting a new filter bag.

Prepare the unit



- ▶ Switch the power switch to "Off".
- ▶ Place the SMARTair plus mobile in a horizontal position.
- ▶ Slightly pull apart the grip strips ② to unlock the snap locks.
- ▶ Remove the cover ① of the SMARTair plus mobile.

Exchanging the filter bag



- ▶ Carefully remove the holder ① from the filter connector ⑤, and remove the filter.
- ▶ Seal the filled filter bag with the adhesive tab ② and throw it away ③.
- ▶ Check if the filter compartment contains dust and clean if necessary.
- ▶ Shove the new filter bag with the cardboard frame ⑥ onto the filter connector ⑦, fix it with the holder ④, and check to see if it is firmly seated.
- ▶ Remount the cover and lock in place.
- ▶ Move the SMARTair plus mobile back into operating position.

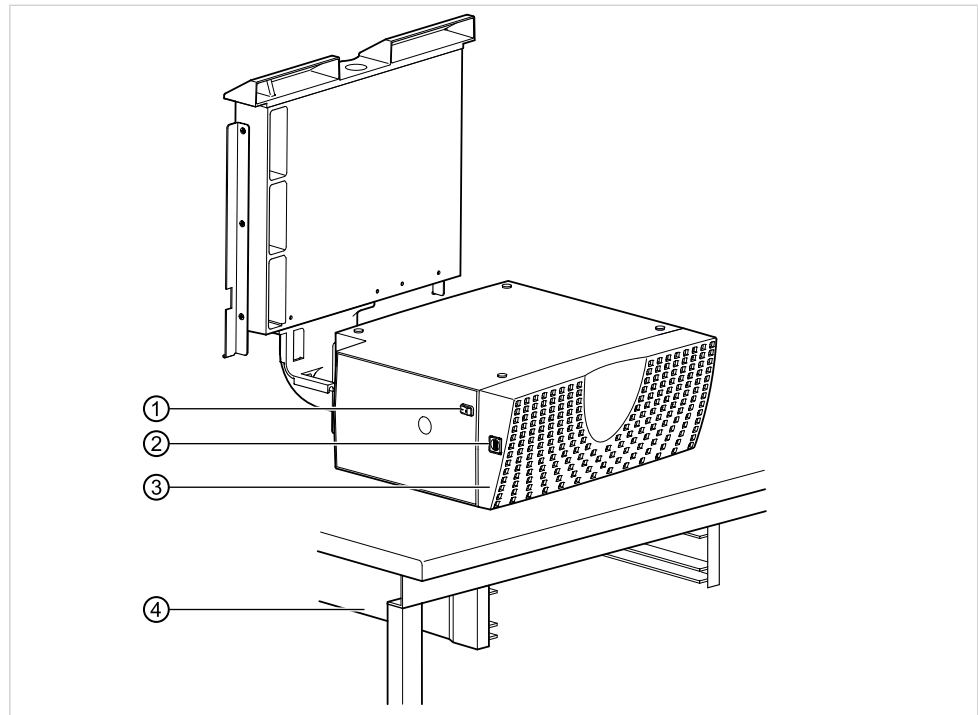
7.2.3 Changing the adsorption filter of the SMARTair plus



Note

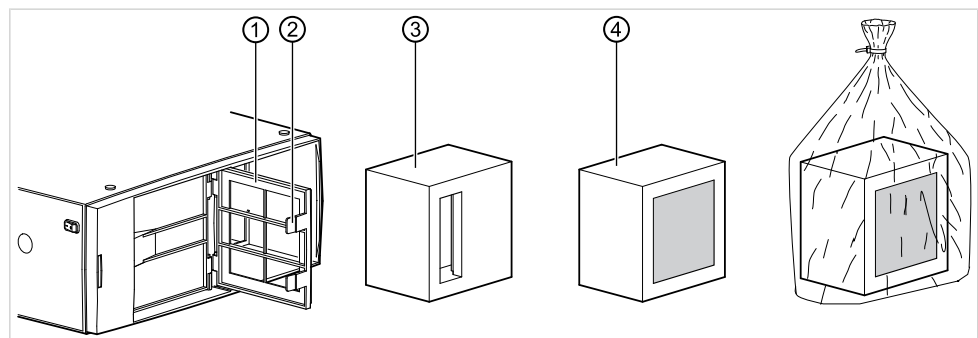
The adsorption filter must be changed every six months.

Prepare the unit



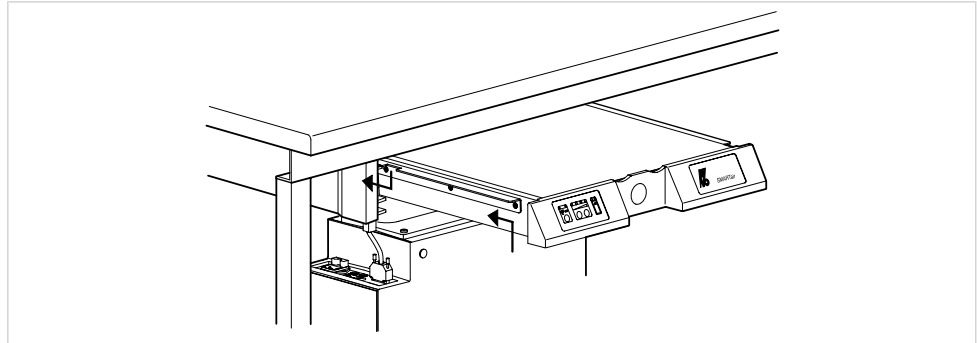
- ▶ Switch the power switch ① to "Off".
- ▶ Pull the power plug and connecting line to the unit.
- ▶ Remove the SMARTair plus from the frame ④ or system base, and place it horizontally on the table.
- ▶ Press in the seal to the housing cover ②, and remove the housing cover ③.

Exchanging the adsorption filter



- ▶ Undo the snap locks ②, and open the filter flap ①.
- ▶ Remove the muffer element ③ and full adsorption filter ④.
- ▶ Insert a new adsorption filter ④.
- ▶ Close the filter flap ① (make sure it locks in place).
- ▶ Mount the housing cover.

- ▶ Insert the SMARTair plus into the frame or system base, and connect.



See also: 4.2 Installing the SMARTair plus, Page 23

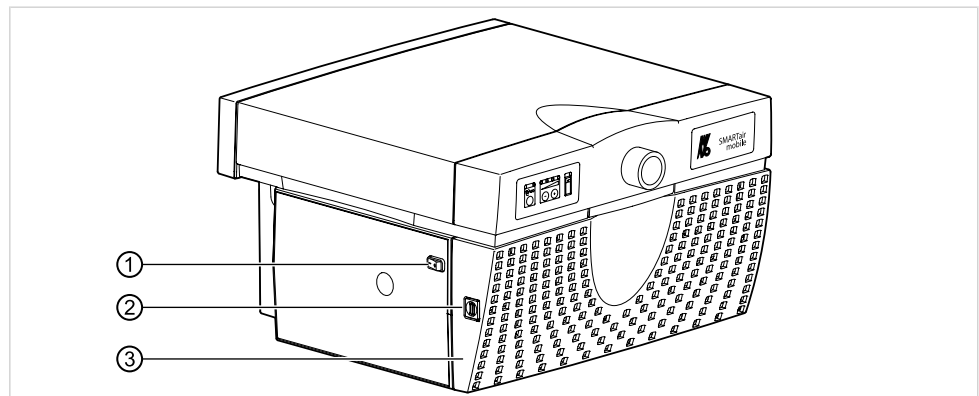
7.2.4 Changing the adsorption filter of the SMARTair plus mobile



Note

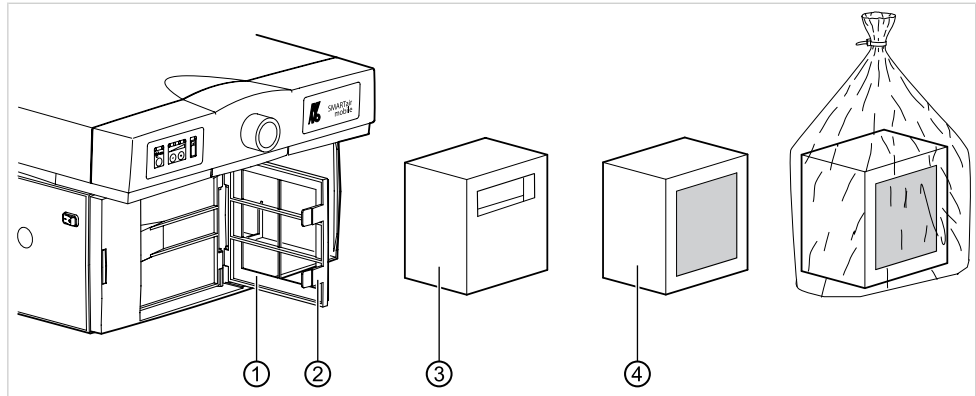
The adsorption filter must be changed every six months.

Prepare the unit



- ▶ Switch the power switch ① to "Off".
- ▶ Pull the power plug and connecting line to the unit.
- ▶ Remove the SMARTair plus mobile, and place it in an accessible position.
- ▶ Press in the seal to the housing cover ②, and remove the housing cover ③.

Exchanging the adsorption filter



- ▶ Open the filter flap ① with the snap locks ② and fold it back.
 - ▶ Remove the muffler element ③ and full adsorption filter ④.
 - ▶ Insert a new adsorption filter ④.
 - ▶ Close the filter flap ② (make sure it locks in place).
-
- ▶ Mount the cover for the SMARTair plus mobile and snap it in place.
 - ▶ Set up the SMARTair plus mobile at the provided location and connect it.

See also: 4.3 Installing the SMARTair plus mobile, Page 26

7.2.5 Changing the ultrafine filter of the SMARTair plus



Note

The SMARTair plus may only be operated when the ultrafine filter is inserted.



Note

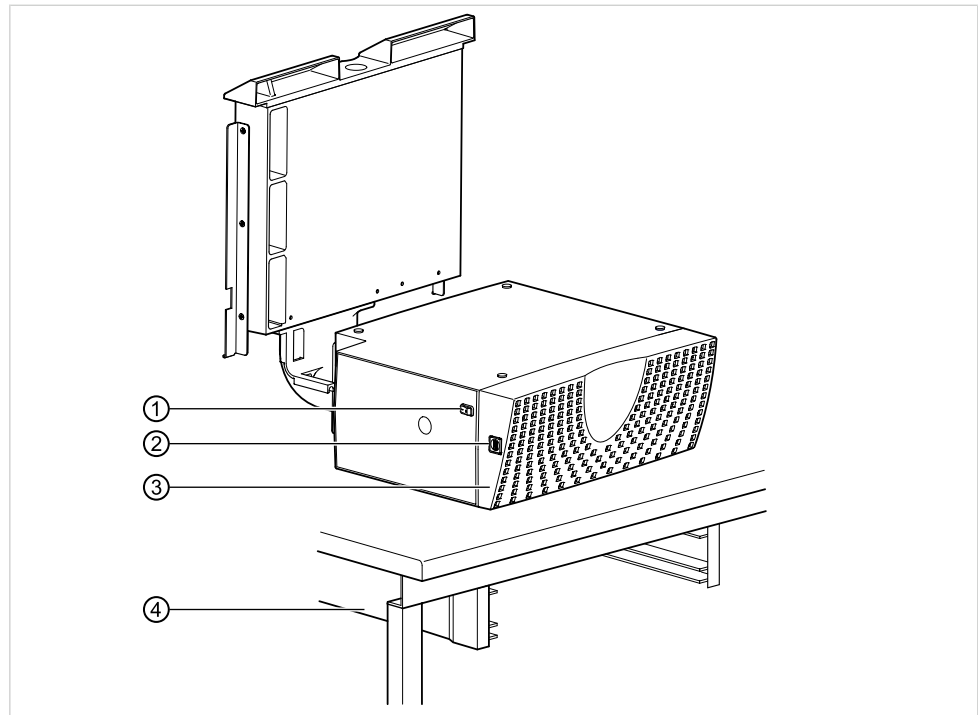
The ultrafine filter must be changed every two years.



Note

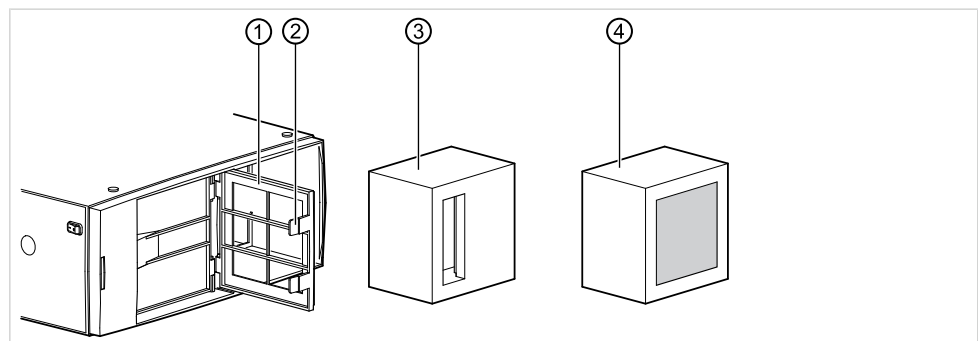
The ultrafine filter also needs to be exchanged when the LED "Filter full" indicates a malfunction after the filter bag has been changed.

Prepare the unit



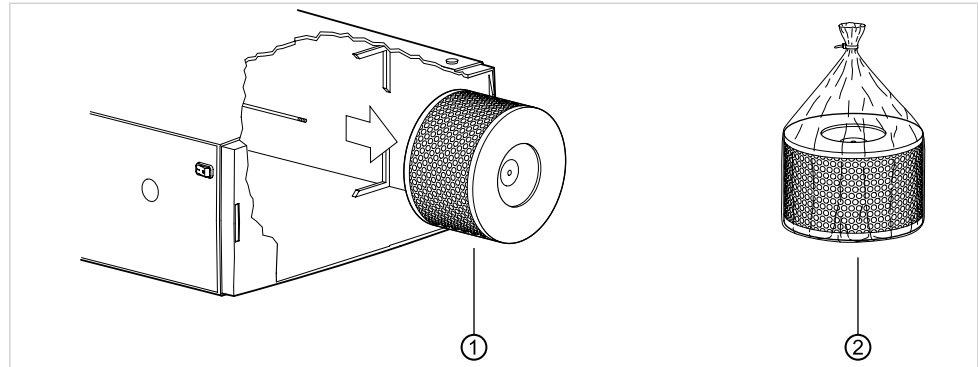
- ▶ Switch the power switch ① to "Off".
- ▶ Pull the power plug and connecting line to the unit.
- ▶ Remove the SMARTair plus from the frame ④ or system base, and place it horizontally on the table.
- ▶ Press in the seal to the housing cover ②, and remove the housing cover ③.

Remove the muffler element/adsorption filter



- ▶ Undo the snap locks ②, and open the filter flap ①.
- ▶ Remove the muffler element ③ or adsorption filter ④.

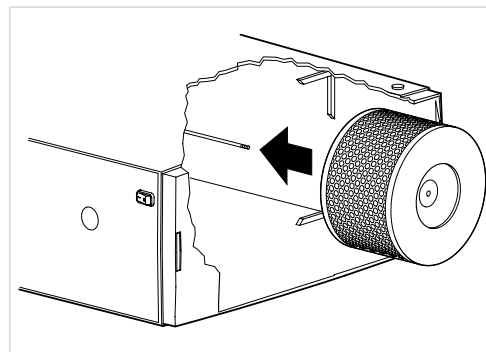
Remove the old ultrafine filter



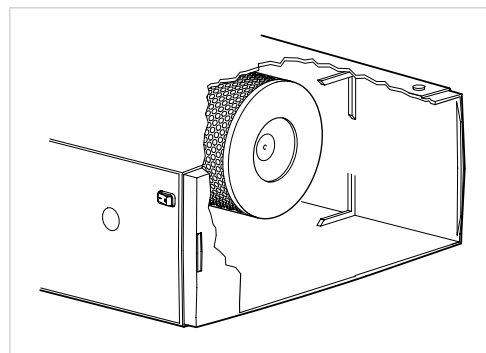
- ▶ Loosen and fold back the two clamping strips on the ultrafine filter ①.
- ▶ If possible, bring the house into the open.
- ▶ Carefully remove the ultrafine filter ① from the housing. Make sure no fine dust enters the housing.
- ▶ Pack the dirty ultrafine filter ① in a dust-tight plastic bag ② and dispose of properly.
- ▶ Vacuum up any residual dust in the filter compartment with a BIA-compliant vacuum cleaner.

Install a new ultrafine filter.

- ▶ Insert the new ultrafine filter into the housing with the opening facing downward.

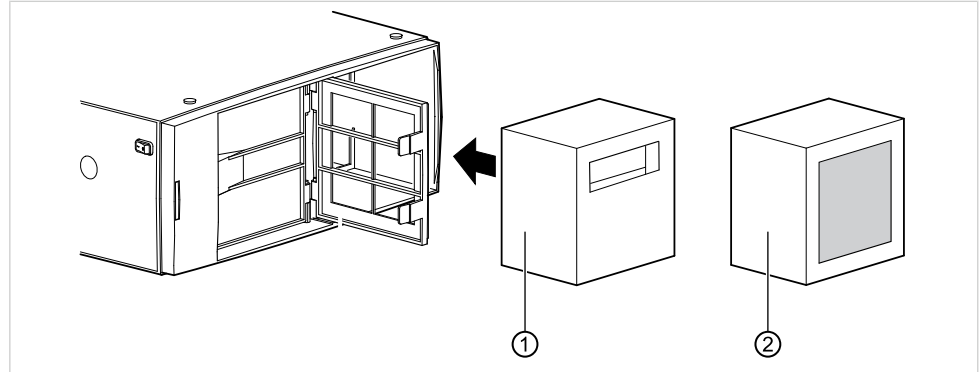


- ▶ Fix the ultrafine filter with the two clamping strips.

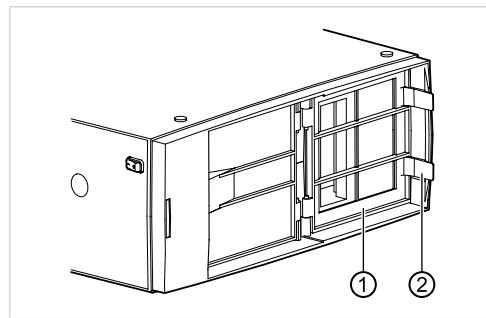


Reinstall the muffler element/adsorption filter

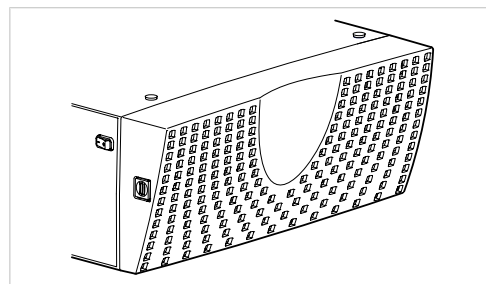
- ▶ Insert a new muffler element ① or adsorption filter ②.



- ▶ Close the filter flap ①. Make sure that the snap locks ② lock in place.

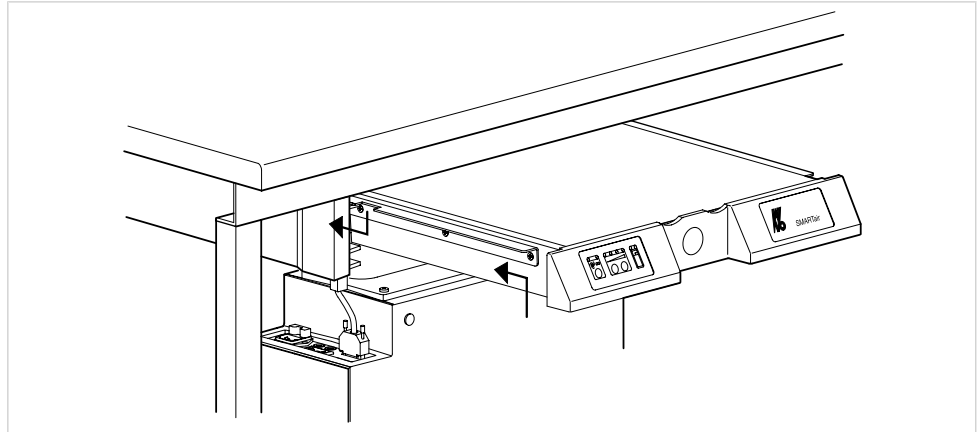


- ▶ Remount the housing cover and lock in place.



- ▶ Connect the power cable and connecting line of the extraction system to the unit.

- ▶ Move the SMARTair plus mobile back into operating position.



7.2.6 Changing the ultrafine filter of the SMARTair plus mobile



Note

The SMARTair plus mobile may only be operated when the ultrafine filter is inserted.



Note

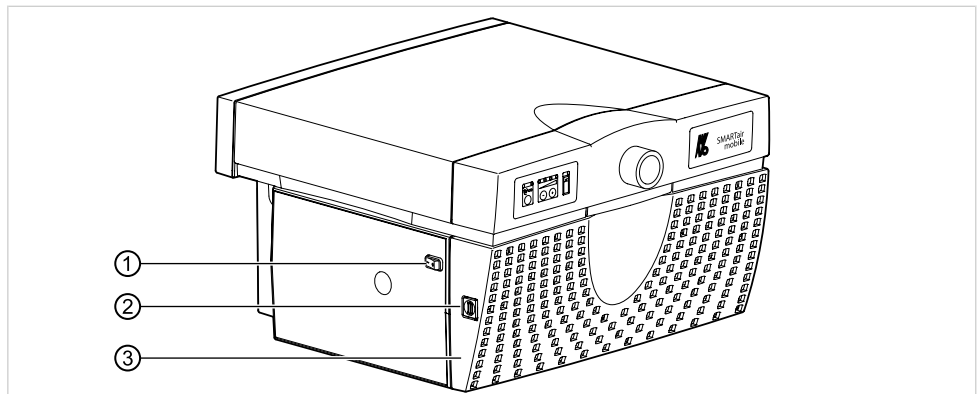
The ultrafine filter must be changed every two years.



Note

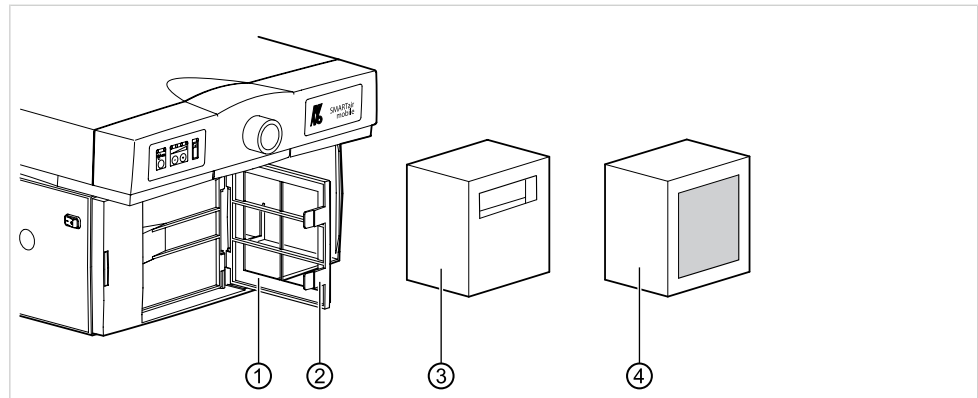
The ultrafine filter also needs to be exchanged when the LED "Filter full" indicates a malfunction after the filter bag has been changed.

Prepare the unit



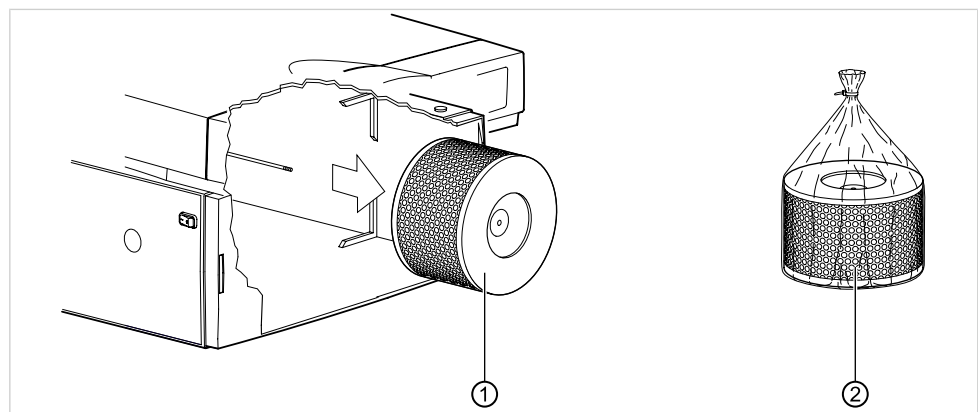
- ▶ Switch the power switch ① to "Off".
- ▶ Pull the power plug and connecting line to the unit.
- ▶ Remove the SMARTair plus mobile, and place it in an accessible position.
- ▶ Press in the seal to the housing cover ②, and remove the housing cover ③.

Remove the muffler element/adsorption filter



- ▶ Undo the snap locks (2), and open the filter flap (1).
- ▶ Remove the muffler element (3) or adsorption filter (4).

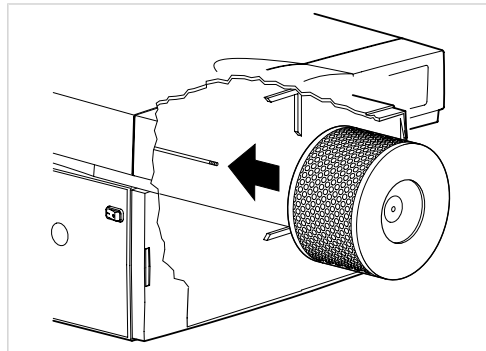
Remove the old ultrafine filter



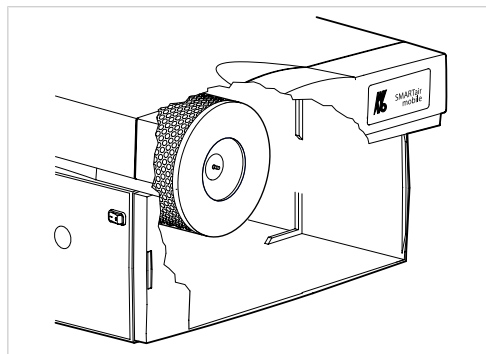
- ▶ Loosen and fold back the two clamping strips on the ultrafine filter (1).
- ▶ If possible, bring the house into the open.
- ▶ Carefully remove the ultrafine filter (1) from the housing. Make sure no fine dust enters the housing.
- ▶ Pack the dirty ultrafine filter (1) in a dust-tight plastic bag (2) and dispose of properly.
- ▶ Vacuum up any residual dust in the filter compartment with a BIA-compliant vacuum cleaner.

Install a new ultrafine filter.

- ▶ Insert the new ultrafine filter into the housing with the opening facing downward.

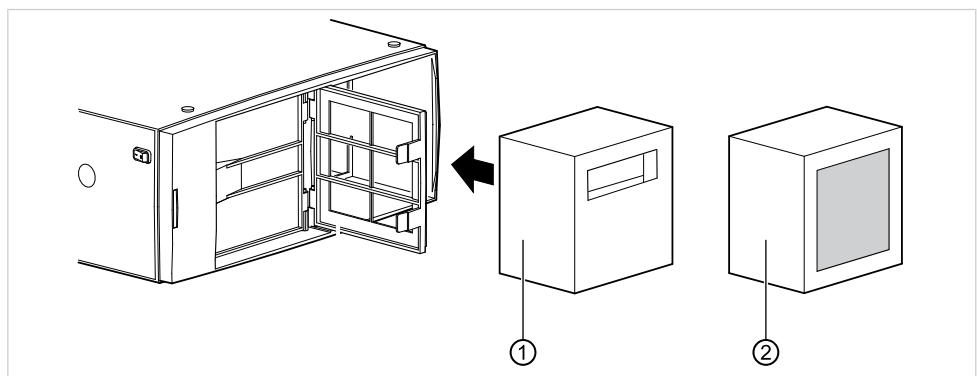


- ▶ Fix the ultrafine filter with the two clamping strips.

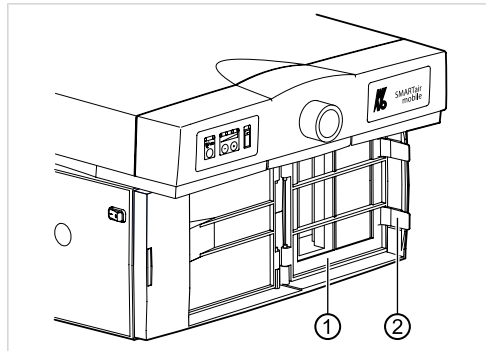


Reinstall the muffler element/adsorption filter

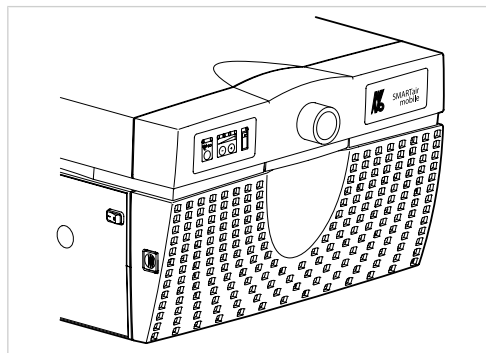
- ▶ Insert a new muffler element ① or adsorption filter ②.



- ▶ Close the filter flap ①. Make sure that the snap locks ② lock in place.



- ▶ Remount the housing cover and lock in place.



- ▶ Connect the power cable and connecting line of the extraction system to the unit.
- ▶ Move the SMARTair plus mobile back into operating position.

8 Safety check



Note

According to § 53 Para. 2 of the Workplace Ordinance, vacuum devices must be checked every two years for function by an expert. After consulting with the Trade Supervisory Office in Celle, the test can be performed by a dental technician who has been trained how to use equipment in his journeyman training.



Note

KaVo recommends checking function annually and observing the sections "Cleaning and servicing" and "Troubleshooting" in these instructions for use.


See also: 7 Cleaning and servicing, Page 37

See also: 9 Troubleshooting, Page 51

Annual tests

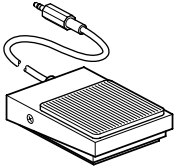
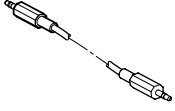
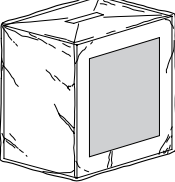
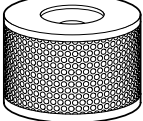

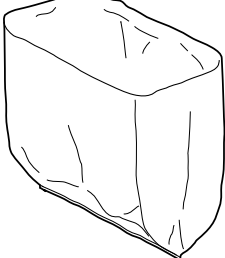
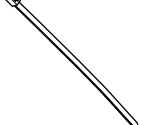
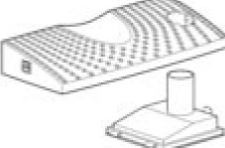
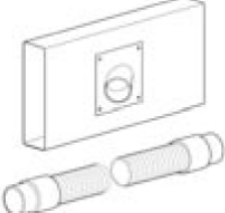
- ▶ Check the filter for damage.
- ▶ Check the housing and hose lines for leaks and cracks.
- ▶ Check the function of the control device and the amount of filtration.
- ▶ Make sure that dust extraction system has original filters and all the necessary filter.
- ▶ Mount the cover loosely, and check if it is sucked tight from the vacuum when the unit is turned on. A flow of air must be detectable at the intake.
- ▶ The person performing the check must provide the date and signature.

9 Troubleshooting

	<p>⚠ DANGER</p>
	<p>Electrical power. Risk of fatal injury.</p> <ul style="list-style-type: none"> ▶ Have the electrical part of the device repaired and serviced only by professionals or persons trained at the factory who have been advised of the safety instructions. ▶ Before opening any housing parts, pull the power plug to turn off the power.

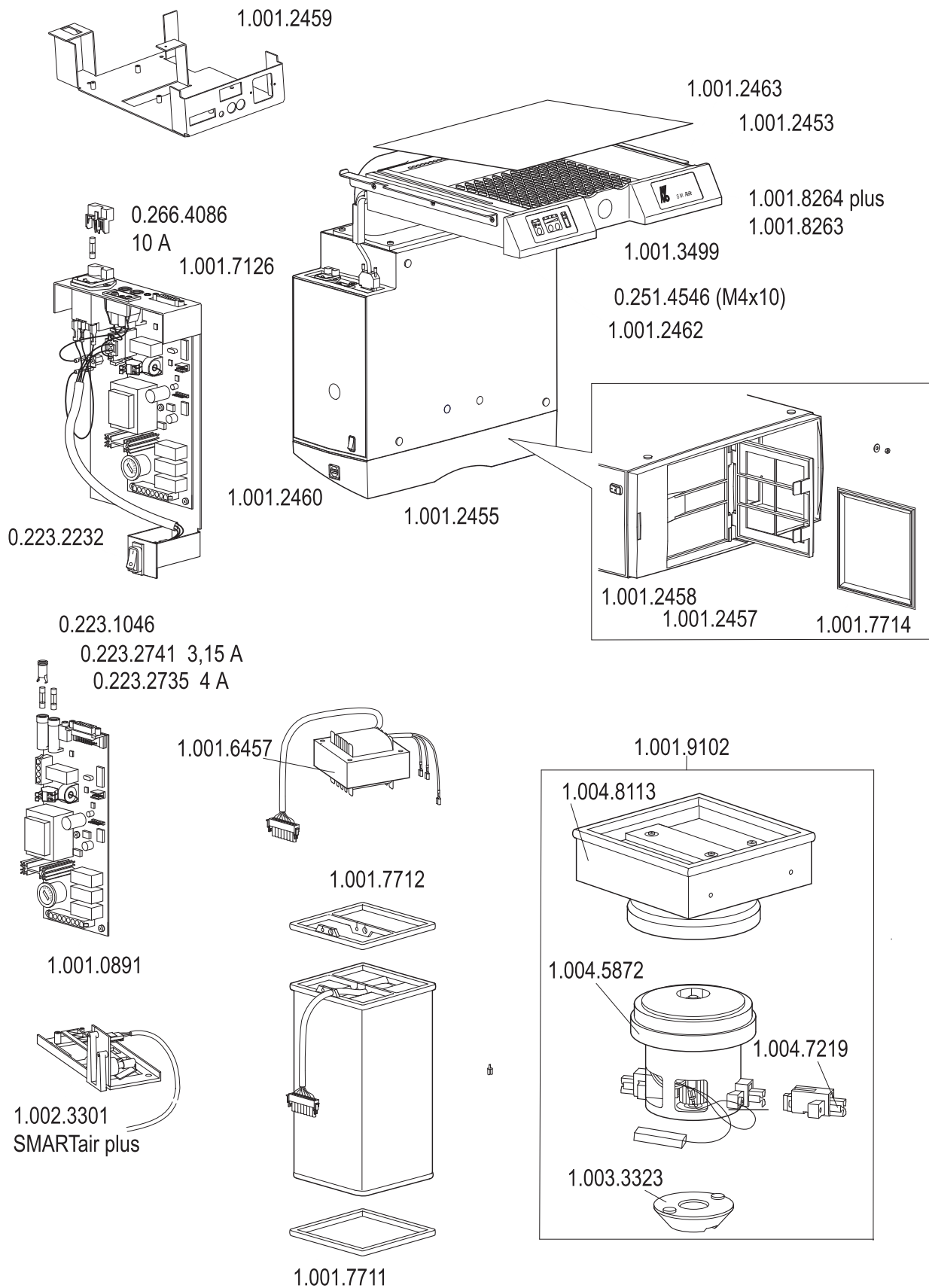
Malfunction	Cause	Remedy
The extraction level is not sufficient.	The filter bag is full.	<ul style="list-style-type: none"> ▶ Change the filter bag. <p>See also: 7 Cleaning and servicing, Page 37</p>
	The default extraction level is set at the lowest level.	<ul style="list-style-type: none"> ▶ Press the "Plus" key to set a higher level.
	The suction hose or suction site is dirty.	<ul style="list-style-type: none"> ▶ Clean the suction hose or suction site.
The suction does not start when the unit starts.	The current switching threshold is not properly set.	<ul style="list-style-type: none"> ▶ Reset the current switching threshold. <p>See also: 6.5 Setting the response sensitivity, Page 35</p>
	The unit is not connected to the dust extraction system.	<ul style="list-style-type: none"> ▶ Connect the unit to the dust extraction system.
	The fuse for the unit is defective.	<ul style="list-style-type: none"> ▶ Change the fuse for the unit and check if the unit is defective.
	The fuse for the dust extraction system is defective.	<ul style="list-style-type: none"> ▶ Exchange the fuse. ▶ Check if the mains voltage and frequency match the rating plate. ▶ Check if the voltage selection switch is set to the national voltage.
The dust extraction system does not start. The "Filter full" LED shines red.	The filter bag or ultrafine filter is full.	<ul style="list-style-type: none"> ▶ Change the filter bag or ultrafine filter. <p>See also: 7 Cleaning and servicing, Page 37</p>
	The filter bag or ultrafine filter is full.	<ul style="list-style-type: none"> ▶ Change the filter bag or ultrafine filter.
	The suction hose or suction site is dirty.	<ul style="list-style-type: none"> ▶ Clean the suction hose or suction hose site.

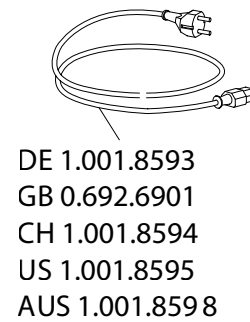
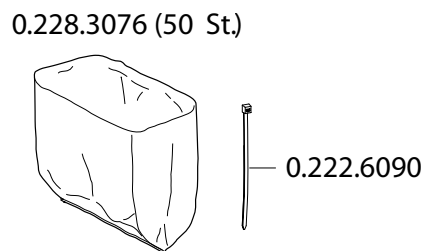
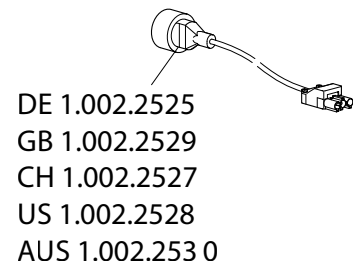
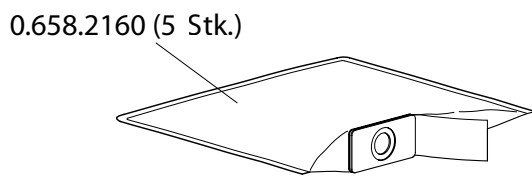
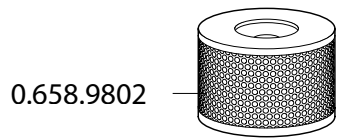
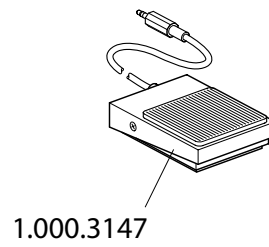
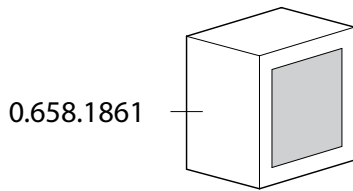
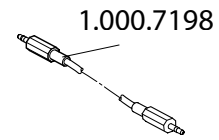
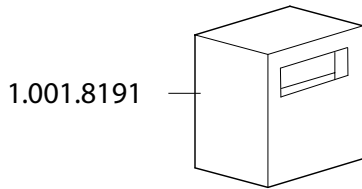
10 Accessories

Presentation	Brief description Mat. No.
	Foot switch (Mat. no. 1.000.3147)
	Connection line for K-Control (Mat. no. 1.000.7198)
	Adsorption filter (Mat. no. 0.658.1861)
	Ultrafine filter (Mat. no. 0.658.9802)
	Filter bag, package with 5 units for all dust extraction systems (Mat. no. 0.658.2160)
	Plastic bag, 50 items (Mat. no. 0.228.3076)
	Cable tie (Mat. no. 0.222.6090)
	Exhaust set, SMARTair (Mat. no. 1.003.9276)
	SMARTair exhaust set for the SMARTair and SMARTair plus (Mat. no. 1.003.9366)

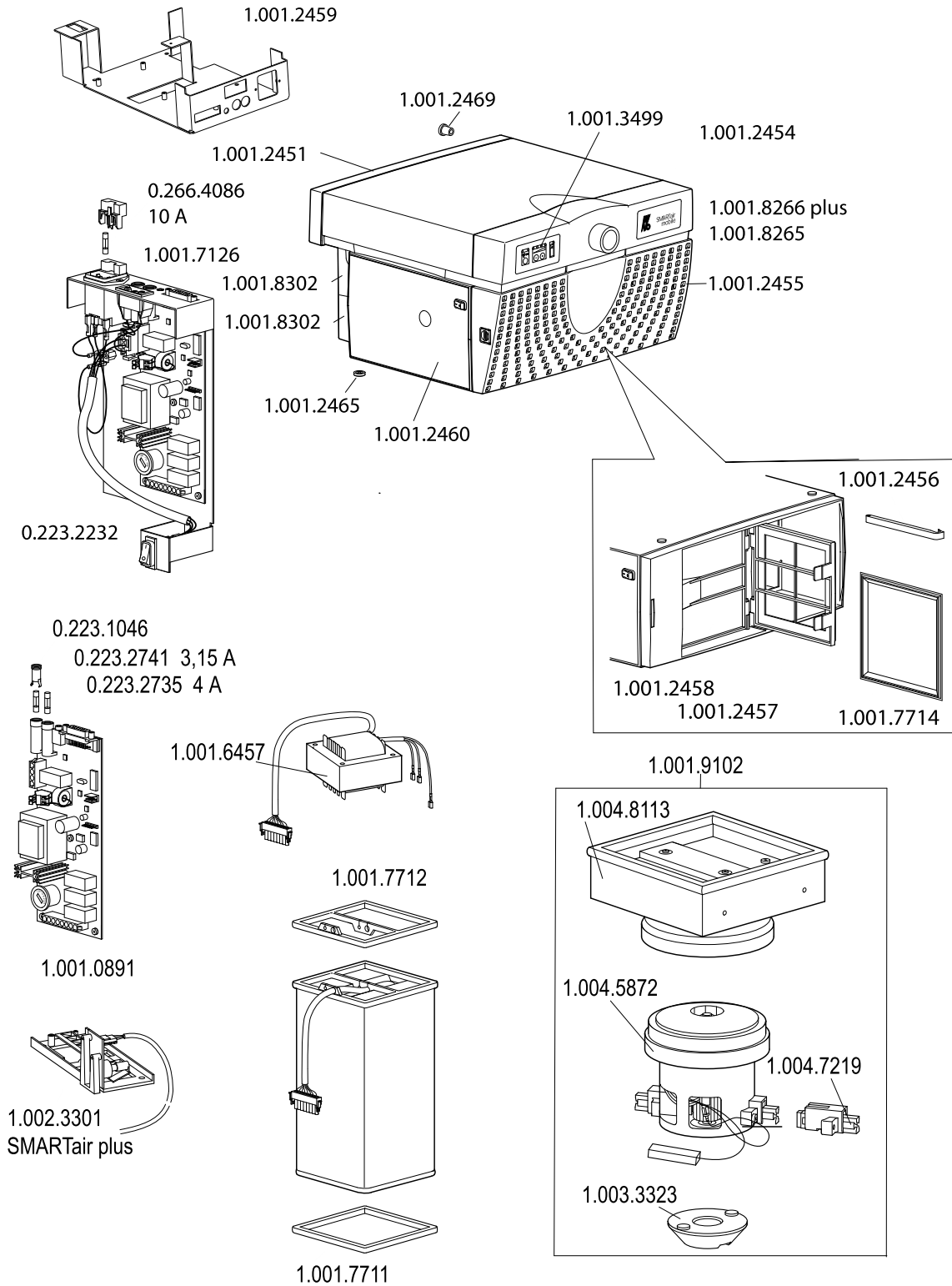
11 Replacement parts

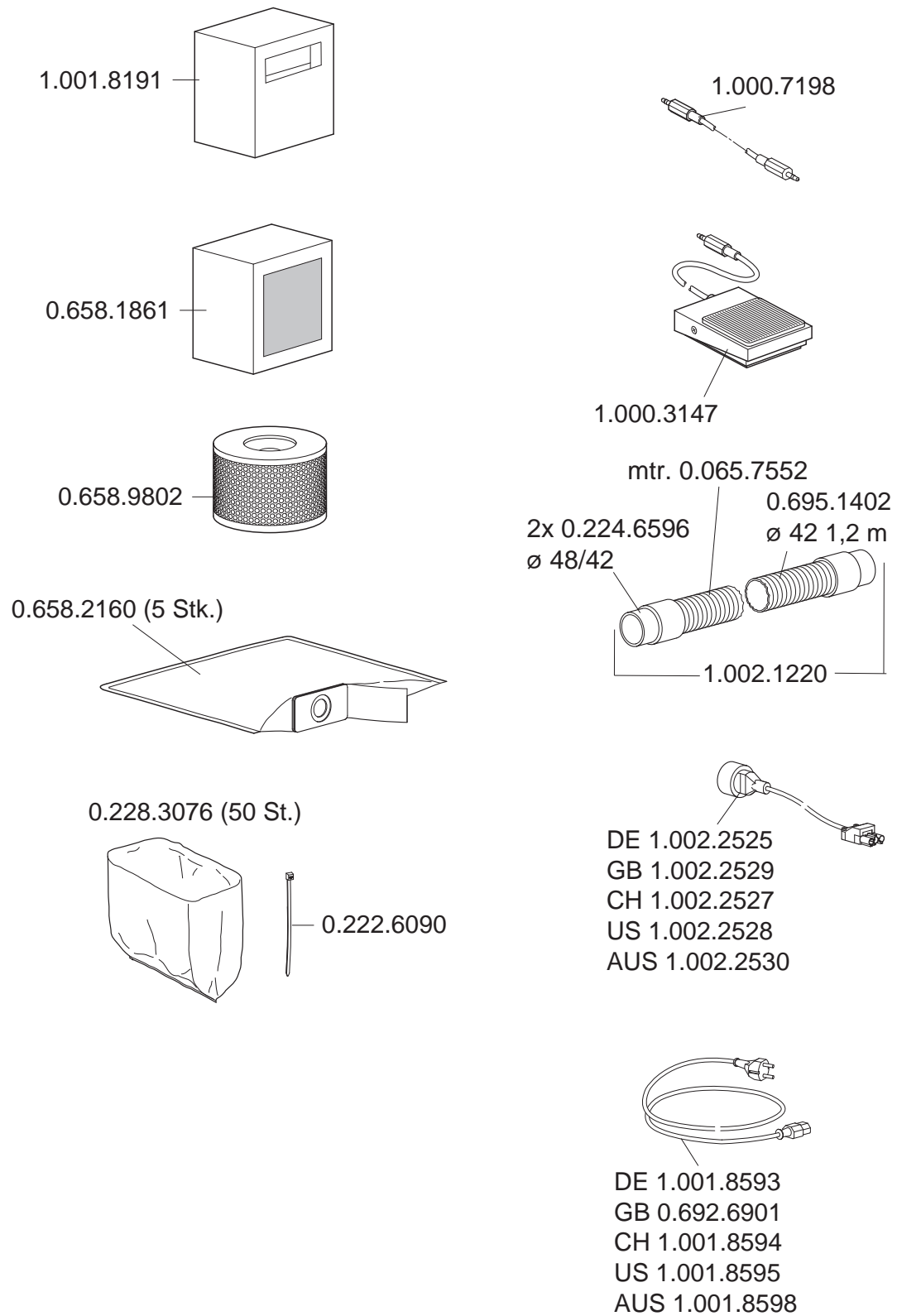
11.1 Replacement parts for the SMARTair plus





11.2 Replacement parts for the SMARTair plus mobile





12 Statement of conformance



EG-Konformitätserklärung
EC-Declaration of conformity
CE-Déclaration de conformité
Dichiarazione di conformità con le norme CE
Prohlášení o shodě s normami ES
Declaración de Conformidad de la CE

Manufacturer:
Kaltenbach & Voigt GmbH
Bismarckring 39
D-88400 Biberach

SMARTair	SMARTair mobile	SMARTair plus
SMARTair FLEXspace Typ 5230	SMARTair plus mobile	SMARTair plus FLEXspace Typ 5231

2006/95/EC	EC Low Voltage Directive
2004/108/EC	EMC Directive
EN 61010-1	Safety requirements for electrical equipment for measurement, control and laboratory use. General requirements
EN 61326-1	Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 1: General requirements

- D** Wir erklären, dass die von uns hergestellten Produkte auf die sich diese Erklärung bezieht, mit den grundlegenden Anforderungen gemäß den Bestimmungen der obigen Richtlinie übereinstimmen. Zur Beurteilung des Erzeugnisses wurden die benannten Normen oder normative Dokumente angewandt.
- GB** We declare that the products manufactured by us to which this statement refers, conform to the essential requirements according to the above-mentioned directive. The specified standards or normative documents were applied to evaluate the product.
- FR** Nous déclarons que les produits que nous fabriquons, auxquels se réfère cette déclaration, sont conformes aux exigences essentielles selon les dispositions de la directive susmentionnée. Les normes ou autres documents normatifs désignés sont utilisés pour le jugement de ce produit.
- IT** Dichiariamo che i prodotti da noi fabbricati, a cui si riferisce la presente dichiarazione, sono conformi ai requisiti fondamentali ai sensi delle disposizioni della direttiva summenzionata. Per la valutazione del prodotto sono stati applicati le norme o i documenti normativi citati.
- CZ** Prohlašujeme, že se námi vyráběné výrobky, na které se vztahuje toto prohlášení, shodují se základními požadavky podle předpisů výše uvedené směrnice. K posouzení výrobku byly použity uvedené normy nebo normativy.
- ES** Por la presente declaramos que los productos que nosotros fabricamos, y a los que hace referencia esta declaración, cumplen los requisitos básicos de conformidad con las disposiciones de la directiva arriba mencionada. Las normas o documentos normativos mencionados se aplican en la evaluación de dichos productos.
-

Biberach
effective date 01.10.2008



Bernd Rakow

Bernd Rakow
Quality Director

