

Silent V4

Nr. 2933 0000

Bedienungsanleitung
Instruction manual • Mode d'emploi
Istruzioni d'uso • Instrucciones para el servicio

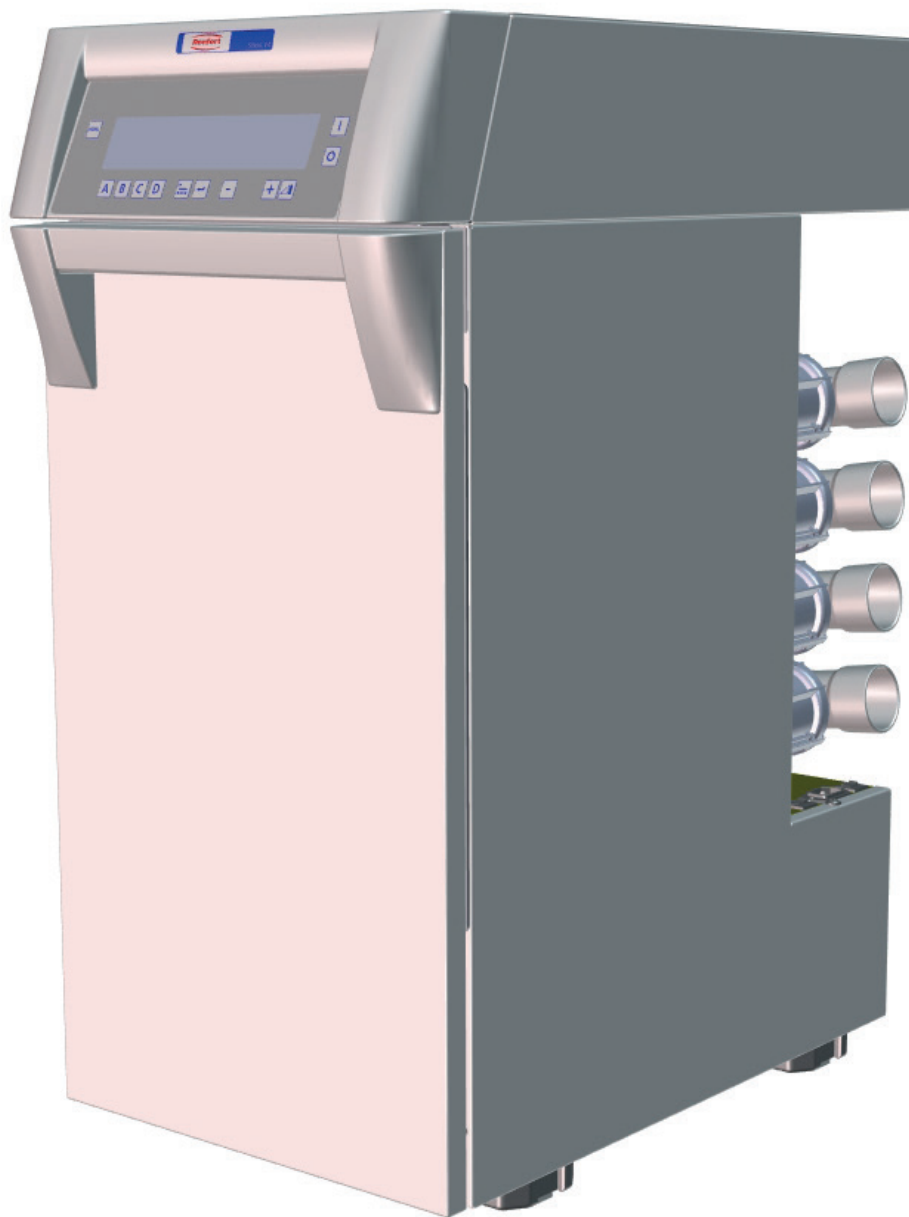
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Silent V4

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ENGLISH

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1. Introduction

1.1 Symbols

In the instructions for use and on the unit itself you will find these symbols with the following meanings:



Danger

This indicates a direct risk of injury. Consult accompanying documents!



Electrical current

This indicates a risk of hazard due to an electrical current.



Attention

Disregarding this warning may result in damage to equipment.



Note

This provides the operator with useful information to improve and ease use.



The device complies with the requirements of the applicable EU directives.



The device is subject to the EU directive 2002/96/EG (WEEE directive).

► List, particular attention should be paid

- List

⇒ Instructions / appropriate action / input / operational sequence:

You will be asked to carry out the action in a specified order.

- ◆ Result of an action / reaction of the device / reaction of the program:

The unit or program reacts as a result of your actions or when a specific incident occurs.

Other symbols are explained as they occur.

2. Safety

2.1 Intended Use

This device is designed to extract dry, non-explosive dust.
This device is intended solely for commercial use in a dental laboratory.
The intended use also includes compliance with the instructions specified by the manufacturer concerning operation, servicing and maintenance.

2.2 Improper Use

Fire promoting, easily flammable or explosive materials must not be extracted with the Silent V4.
The extraction of liquids, smoldering or burning materials is prohibited.
This device is not intended for private, household use.
Any use other than specified in these instructions is deemed improper and constitutes a misuse of the device. The manufacturer shall not be liable for damages caused by improper use.

Only spare parts and accessories supplied or authorized by Renfert GmbH may be used with this product. If other spare parts or accessories are used, this could have a detrimental effect on the safety of the device, increase the risk of serious injury and lead to damage to the environment or the device itself.

2.3 Ambient Conditions for Safe Operation

The device may only be operated:

- Indoors
- Up to an altitude of 2,000 m above sea level,
- At an ambient temperature of between 5 - 40 °C [41 - 104 °F] *),
- At a maximum relative humidity of 80 % at 31 °C [87.8 °F], dropping to a linear of up to 50 %
- Relative humidity at 40 °C [104 °F] *),
- With mains power where the voltage fluctuations do not exceed 10 % of the nominal value,
- Under contamination level 2 conditions,
- Under over-voltage category II conditions,

*) Between 5 - 30 °C [41 - 86 °F] the device can be operated at a relative humidity of up to 80 %. At temperatures between 31 - 40 °C [87.8 - 104 °F] the humidity must decrease proportionally in order to ensure operational readiness (e.g. at 35 °C [95 °F] = 65 % humidity, at 40 °C [104 °F] = 50 % humidity). The device may not be operated at temperatures above 40 °C [104 °F].

2.4 Ambient Conditions for Storage and Transport

For storage and transport the following specifications to ambient conditions apply:

- Ambient temperature -20 – +60 °C [-4 – +140 °F].
- Maximum relative humidity 80 %

2.5 Hazard and Warning Information



2.5.1 General Information

- ▶ If the device is not used in compliance with the supplied instructions, the safety of the device can no longer be guaranteed.
- ▶ The device may only be operated using a mains cable with the country-specific plug system. Any necessary alterations must be carried out by a qualified electrician.
- ▶ The device may only be operated if the information on the identification plate conforms to the specifications of your local mains power supply.
- ▶ The device may only be plugged into outlets which are connected to the protective conductor system.
- ▶ The mains plug must be easily accessible.
- ▶ Disconnect the device from the mains before carrying out work on the electrical parts.
- ▶ Check connection cables (such as power supply cords), tubes and housing (i.e. the key-pad) regularly for damage (i.e. kinks, cracks and porosity) or signs of ageing. Devices with damaged connection cables, tubes or housing parts or other defects must not be operated!

- ▶ Defective devices must be put out of service immediately. Remove the mains plug and ensure the device is not used. Send the device for repair!
- ▶ Only operate the device under supervision.
- ▶ The use of unauthorized accessories may be an impediment to the safety of the device. Use spare parts and accessories supplied by Renfert only.
- ▶ Observe the accident prevention regulations by the trade association!
- ▶ It is the responsibility of the operator that national regulations during operation and regarding a repeated safety inspection of electrical equipment are complied with.
For Germany these are BGV A3 in relation with VDE 0701-0702.

2.5.2 Specific Information

- ▶ The appliance socket connections in the Quattro Control-Box (15, Fig. 1), are only for use as described in the Instructions for Use. If other electrical appliances are connected, this may cause damage.
- ▶ Before connecting a piece of electrical equipment to the Quattro Control-Box, please ensure the equipment is switched off.
- ▶ Read the operating instructions of the other appliance and comply with the safety instructions contained in the document.
- ▶ Please observe the national regulations and permitted exposure to dust in a working environment. Please ask the “National Institute for Occupational Safety and Health” or other responsible authority.
- ▶ Always refer to the relevant safety data sheets, when extracting hazardous materials,
- ▶ Always wear protective gear, when extracting hazardous materials.
- ▶ It is necessary to wear suitable personal protective equipment when emptying the dust drawer or cleaning, depending on the type of extracted material.
- ▶ When disposing of the extracted material or used filter, please observe the local specifications and accident prevention regulations!
- ▶ Make sure the dust drawer is fully closed during operation.
- ▶ Do not operate without a suction hose.
- ▶ Do not extract flammable or explosive gasses, fumes or dust.
- ▶ Do not extract hot materials.
- ▶ Do not extract liquids.
- ▶ If the dust extractor is employed to extract hazardous materials, appropriate personal protective gear must be worn and steps must be taken to ensure that the exhaust air is properly ventilated. Please refer to the associated safety data sheets for specific requirements.
- ▶ Dispose of extracted material according to local statutory regulations.

2.6 Authorized Persons

Operation and maintenance of the device may only be performed by qualified personnel.

Minors and pregnant women may only operate and service the device if they are wearing appropriate protective gear, in particular if the device is being used to extract hazardous materials.

Any repairs not specifically described in these operating instructions may only be carried out by a qualified electrician.

2.7 Disclaimer

Renfert GmbH shall be absolved from all claims for damages or warranty if:

- ▶ The product is employed for any purposes other than those specified in the operating instructions.
- ▶ The product is altered in any way other than those alterations described in the operating instructions.
- ▶ The product is not repaired by an authorized facility or if non-original Renfert parts are implemented.
- ▶ The product continues to be used despite obvious safety faults or damage.
- ▶ The product is subjected to mechanical impacts or is dropped.

3. Product Description

3.1 General Description

This device is a workbench extraction unit for the extraction of dusts generated in a dental laboratory. The extraction unit comprises four suction channels, one suction point (e.g. workbench) can be connected to each channel.

The extraction unit can be operated both manually and automatically, depending on the connected, electrical, dust-generating equipment.

3.2 Components and Functional Elements

- | | |
|---|---|
| 1 Silent V4 | 12 QCB Interface |
| 2 Key-pad | 13 Connection to power supply Silent V4 |
| 3 On / Off switch | 14 Device protection switch |
| 4 Front panel | 15 Quattro Control-Box (= QCB) |
| 5 Dust drawer | 16 Device coupler socket |
| 6 Fine filter | 17 Power supply QCB |
| 7 Pinch valve with suction port (rotatable) | 18 2 x Power cable |
| 8 Suction hose (not contained in delivery) | 1 x Silent V4 |
| 9 Compressed air tube | 1 x QCB |
| 10 QCB Interface cable | 19 Cool air connection |
| 11 USB Connection | |

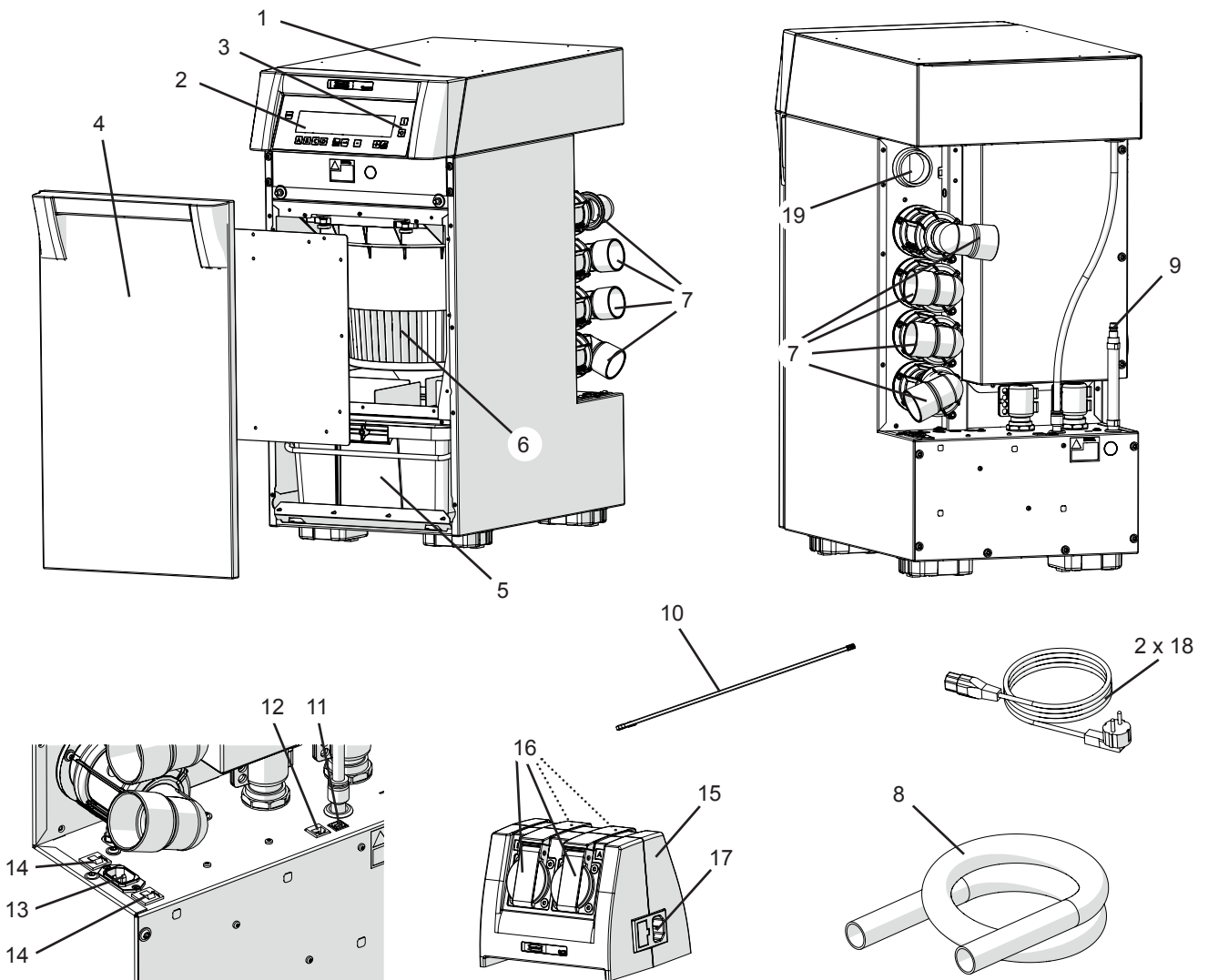


Fig. 1

- 3 On / off switch
- 30 Menu key
- 31 Self-diagnosis on / off
- 32 Audible signal on / off
- 33 Display / Programming dust drawer full
- 34 Programming start-up threshold
- 35 Programming shut off delay
- 36 Operating hours counter
- 37 7 segment display
- 38 Suction level display
- 39 Turbo level display
- 40 Favorite status display
- 41 Suction hose display
- 42 Suction hose keys
- 43 Operating mode display (single / multi)
- 44 Operating mode key (single / multi use)
- 45 Enter button, save input / display enter button
- 46 \square Button / display function of \square button
- 47 Display factory setting
- 48 \oplus Button / display function of \oplus button
- 49 Turbo key / turbo key function

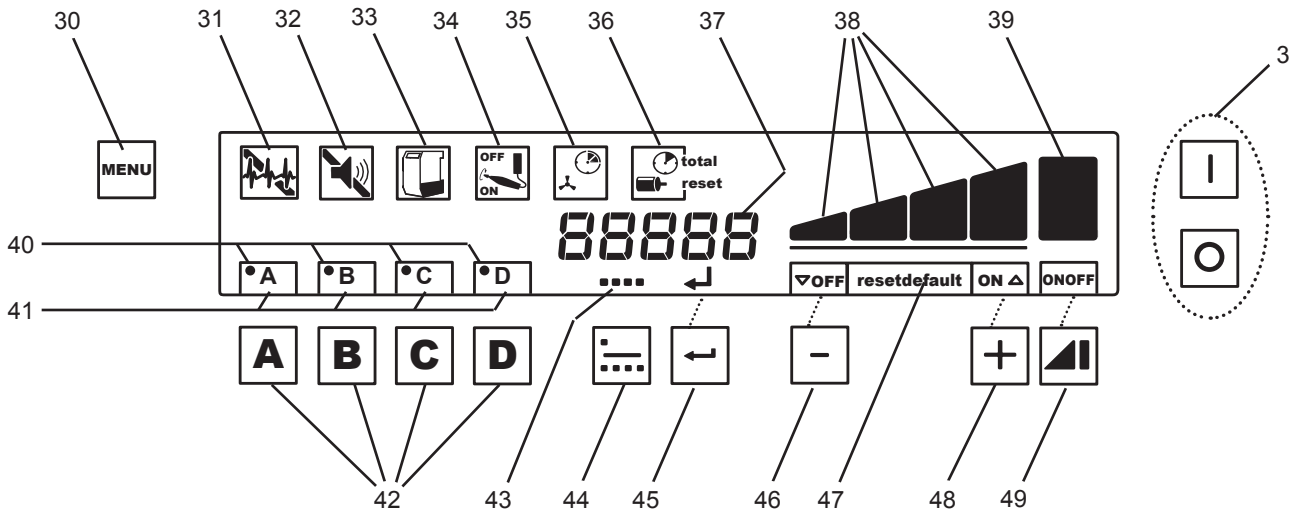


Fig. 2

3.3 Scope of Delivery

- 1 Silent V4
- 1 Power cable Silent V4
- 1 Quattro Control-Box (= QCB)
- 1 Power cable QCB
- 1 QCB interface cable
- 1 Operating instructions
- 1 Quick reference card
- 1 Compressed air tube (sealed)

3.4 Accessories

- 2921 0003 End muffler set, 2 pieces
- 90003 4240 Suction hose, 3 m, incl. 2 end mufflers
- 90003 4826 Suction hose, antistatic, 3 m, incl. 2 end mufflers
- 90115 0823 Suction hose, 6 m
- 90215 0823 Suction hose, 9 m
- 90003 4305 Tube support adapter
- 90003 4430 Suction hose adapter universal
- 2933 0002 External exhaust air duct Silent V4
- 2933 0003 Cooling air tube Silent V4 (when installing the Silent V4 in existing furnishings)
- 2933 0004 Unit base feet, adjustable (Set) (when installing the Silent V4 in existing furnishings)
- 2933 0005 Conversion kit Front panel Silent V4
- 2933 0420 Remote control starter set

4. Setting Up

4.1 Unpacking

⇒ Remove the device and all the accessories from the delivery package.

You will find more accessories in the dust drawer. (To open the dust drawer, see section 6.1).

⇒ Check the delivery for completeness (refer to the “3.3 Scope of Delivery” section).

4.2 Setup

The extraction unit is a free-standing appliance, intended to be set-up on the floor (e.g. under the workbench).

Up to four suction points can be connected to the extraction unit.

Position the extraction device so that:

- The exhaust air duct at the back of the unit is not hindered.
- The distance to the suction points is approximately even (see section 4.5).
- The front of the device is easily accessible for removal of dust drawer.

4.2.1 Integration in existing Workbench



If the device is to be built into the existing furnishings, it is important to ensure there is a supply of external cooling air and that the exhaust air is transported out via the external ventilation duct! For this, please use the cooling air tube and the external ventilation duct available as an accessory (see accessories).

⇒ Insert the cool air tube into the cool air connection (19, Fig.1).

⇒ Position the cool air tube so that:

- Cool air is sucked in and not the warmed air exhaust air from the extraction unit.
- No dirt is sucked in (e.g. do not place on the floor).

⇒ Install the external ventilation duct as described in the instructions.

In addition, a ventilation opening is also required. The air ventilation passageway must be at least 80 cm² in size.

The height of the unit can be altered via the adjustable feet at the base of the unit (see accessories). The installation details are supplied with the unit feet.

4.2.2 External Exhaust Air Route

An external exhaust air route (see accessories) allows the extracted air to leave the laboratory. The installation details are supplied with the external exhaust air route.



When the extraction unit is used in conjunction with an external ventilation system, a significant quantity of air is extracted from the room per hour.

This can create negative pressure within the room which, when using an air dependent naked flame fed by gas, liquid or solid fuel, can cause poisonous gasses (e.g. carbon monoxide) to be drawn into the working area.

It is therefore essential to ensure that the fresh air supply is sufficient and that the environmental air pressure is maintained, this should then be monitored by an authorized specialist (e.g. a certified Gas Service Engineer).

4.3 Electrical Connection



Before connecting the device, ensure that the voltage information on the identification plate corresponds with your local power supply.



Arrange the conducting parts (plug sockets, plugs and couplings) and install the extension cord so that the protection class is retained.

⇒ Switch the device OFF at the On / Off switch (3, Fig.1)

⇒ Connect the power cable (18) to the power supply (13).

⇒ Insert the mains cable into the plug socket.

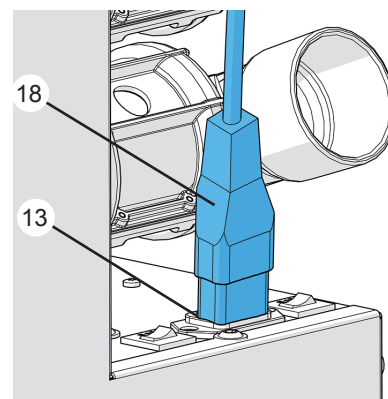


Fig. 3

4.4 Compressed Air Connection

The extraction unit requires compressed air for the following reasons:

- To open and close the pneumatic pinch valves,
- For the automatic filter cleaning function.

On the device, the compressed air tube is sealed (9, Fig. 1).

⇒ Connect the compressed air tube with assembled coupling to the compressed air supply.



Observe the minimum / maximum connection pressure; see section 8.1, Technical Data! Do not change the coupling fitting on the compressed air tube for a smaller version!



The compressed air must be clean, dry (no condensation) and free from oil. Moist compressed air can cause damage to the appliance!



The compressed air supply tube leading from the compressor to the appliance should be no less than 10 mm in diameter.

4.5 Connection to the Extraction Point

The extraction point is at the extractor connection fitting (7).

The items “pinch valve and suction ports” are rotatable.



When you turn the pinch valve, please ensure that there are no kinks in the compressed air tubes and that they are not unintentionally ripped off!

The suction ports are marked with the letters A, B, C, D on the compressed air tubes, so that the suction channels can be easily allocated.

⇒ As required, turn the pinch valve with the suction port (7) into the correct direction.

⇒ Insert the suction tube (8, not contained in delivery) into the suction port (7).

If the diameter of the tube does not fit accurately, use a tube connection adapter (see accessories) to prevent background extraction noise and loss of suction.

⇒ Attach the suction tube to the relevant suction point (e.g. Dustex master plus, suction hood, etc.).

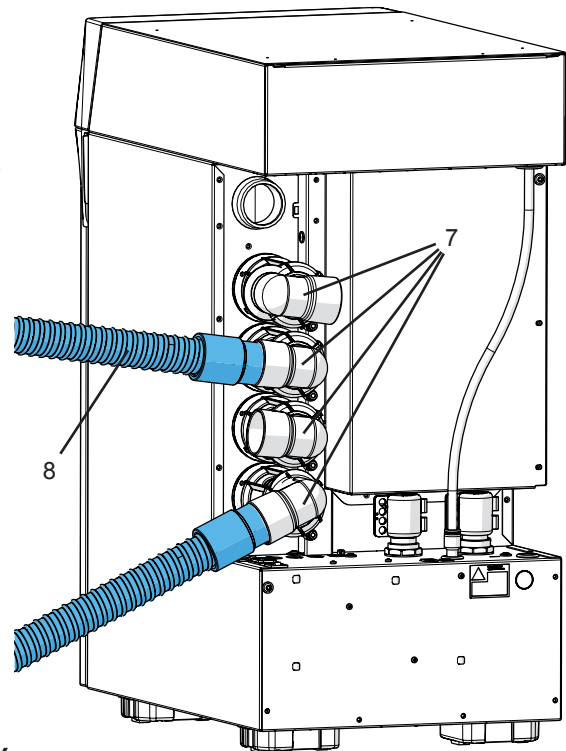


Fig. 4



In order to achieve a good, even suction performance, the suction tubes should be approximately the same length and no longer than 3 m.



Long suction hoses, tight bends and kinks will considerably reduce the extraction force at the extraction point.



If different suction hose lengths are used, the extraction force will be lower at the extraction point with the longer hose.



Make sure that the suction hoses are the same length and diameter. Excess hose can be cut to size or laid in a large arch.



Avoid steep pitches or hanging points along the hose path.

4.6 Quattro Control-Box (= QCB)

With the QCB (15) it is possible to switch the suction on and off and to activate and deactivate relevant suction channels depending on the requirements of the dust generating electrical appliances.

Up to four different electrical appliances can be connected to the appliance socket connections (16) at the QCB. When the electrical appliance is activated, the relevant suction channel opens.

The appliance socket connections (16) are marked with the letters A, B, C, D so that the suction channels can be easily allocated.

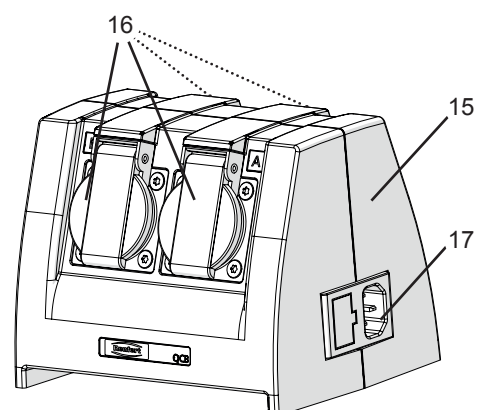


Fig. 5

4.6.1 Installation of the Quattro Control-Box

Position the Quattro Control-Box so that the electrical appliances can be easily connected.

Power supply:



Before connecting the electrical appliance, please ensure that the voltage information on the type plate is compatible with the local power supply.

⇒ Insert the supplied power cable (18, Fig. 1) into the power connection at the QCB (17, Fig. 5).

⇒ Insert the power cable into the socket.

Connecting to the Silent V4:

⇒ Connect the QCB interface cable (10) to QCB interface (12) on the extraction unit.

⇒ Connect the QCB interface cable (10) to the connection point (20) of the Quattro Control-Box.

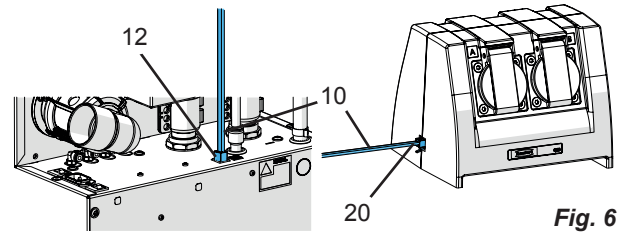


Fig. 6

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4.6.2 Connecting the Electric Appliances

⇒ Connect the electric appliances to the appliance socket connections (16, Fig. 5) on the QCB (A, B, C, D). Observe the allocation of the socket connections – suction channel / pinch valve.



When connecting the electronic equipment to the Quattro Control-Box, ensure that the total sum of currents from the connected electrical appliances does not exceed the maximum permissible load on the Quattro Control-Box (see section 8.2, Technical Data).

5. Operation

The extractor unit is operated via the buttons on the key-pad (Fig. 2).

5.1 Switching the Unit On

The extractor is switched ON and OFF at the On / Off switch (3).

The switch on process takes place in the following steps:

Action / Result	Note
Switch on	On / off switch (3)
Display firmware version	Approximately 5 sec.
Filter cleaning	display "Code 01" Duration approx. 20 sec.
Self diagnosis	Once activated, approx. 30 sec.
Ready for use	

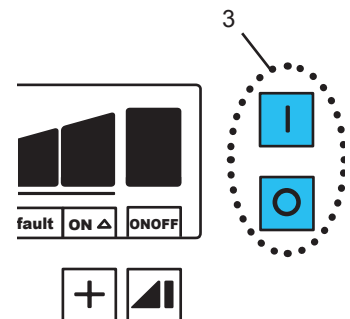


Fig. 7

5.1.1 Stand-By

In the stand-by mode the display is dark.

Change to the stand-by mode:

- If no button has been pressed and no suction hose is open for a period of 2 min.

Leave stand-by mode:

- Press any button.
- To switch on one of the connected Quattro Control-Box appliances. Once switched on, the suction hose will open immediately and the extractor turbine will activate.

5.2 Suction Performance

The suction performance can be set at four different levels. The current suction level is shown in the display (38). To see the allocation of the suction level to the suction channels, see section 5.4.1 Single Use and section 5.4.2 Multi Use.

Setting the suction level:

- ⊕ Key (48), to select higher suction level
- ⊖ Key (46), to select lower suction level

The suction performance of a particular suction level is automatically adjusted i.e. when a suction channel is either closed or switched off and according to the degree of dust in the filter.

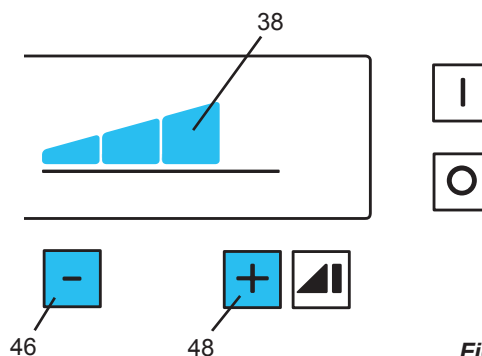


Fig. 8



The suction performance depends on the degree of dust in the filter, the selected suction level and the number of open suction channels. If the extraction unit is running at its maximum level, it may occur that one particular suction point does not achieve its full potential.

In this case, in order to increase the suction level at this particular suction point, it is necessary to close one or more other suction channels.

5.3 Turbo Level

The suction channels' efficiency can be increased to an additional turbo level.

In this case the extraction unit runs at its maximum performance.

The selected turbo level is shown with a fifth bar (39) at the suction level display.

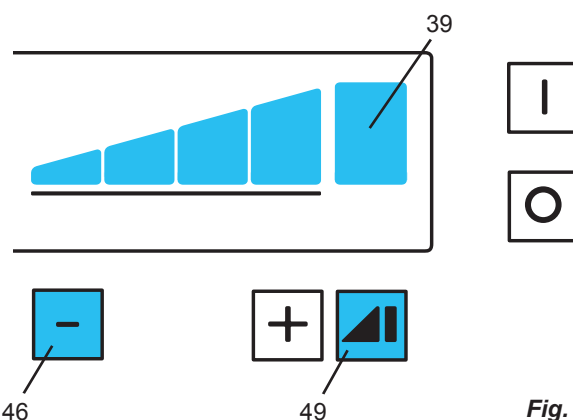


Fig. 9

Switch turbo level on:

⇒ Press turbo key (49).

Switch turbo level off:

⇒ Press turbo key (49) again

- ◆ the previously used suction level will automatically be resumed

or

⇒ ⊖ press key (46)

- ◆ Suction level four will be set.



it is NOT possible to select the turbo level on a suction tube which has the favorite status (see section 5.4.5).

5.4 Operation



It is only possible to change from single to multi use mode if all suction channels are closed! For this reason, close the suction on all suction channels before changing.

5.4.1 Single Use

When in single use, the suction takes place at only suction point.

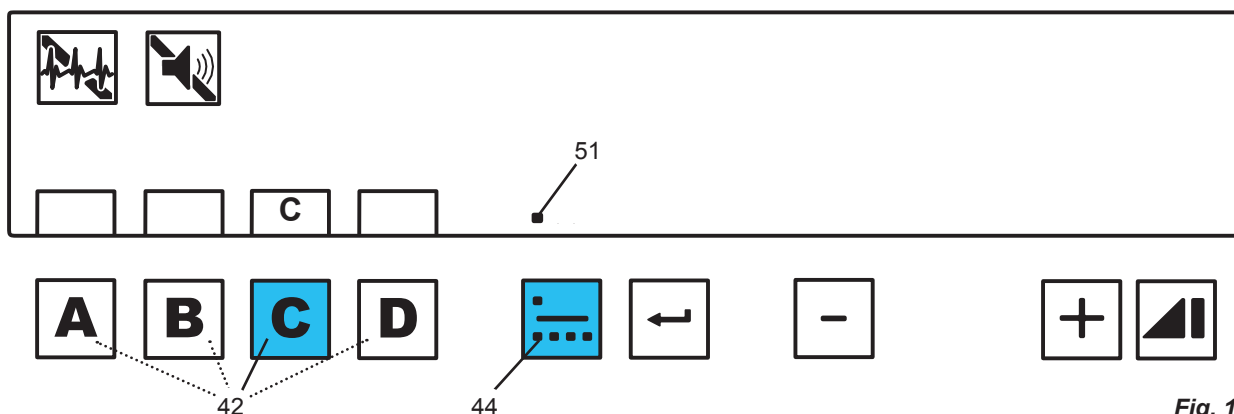


Fig. 10

Select single use:

- ⇒ Press operation mode key (44) repeatedly until
 - ◆ the single mode symbol (51) is shown.

The suction level display will remain dark until a suction channel is opened.

Open a suction channel by:

- ⇒ Pressing the relevant suction channel key (42).
- or
- ⇒ By switching on one of the electrical appliances connected to the Quattro Control-Box.
 - ◆ The letter of the opened suction channel is shown in the display.

It is only possible to change the suction level and select the turbo level on this particular opened suction channel.

i *The suction level and also the selected turbo level are automatically saved for each individual suction channel, and reset when the suction channel is opened.*

5.4.2 Multi Use

When in multi use, multiple suction channels are open at the same time.

The suction performance is evenly distributed over all opened suction channels.

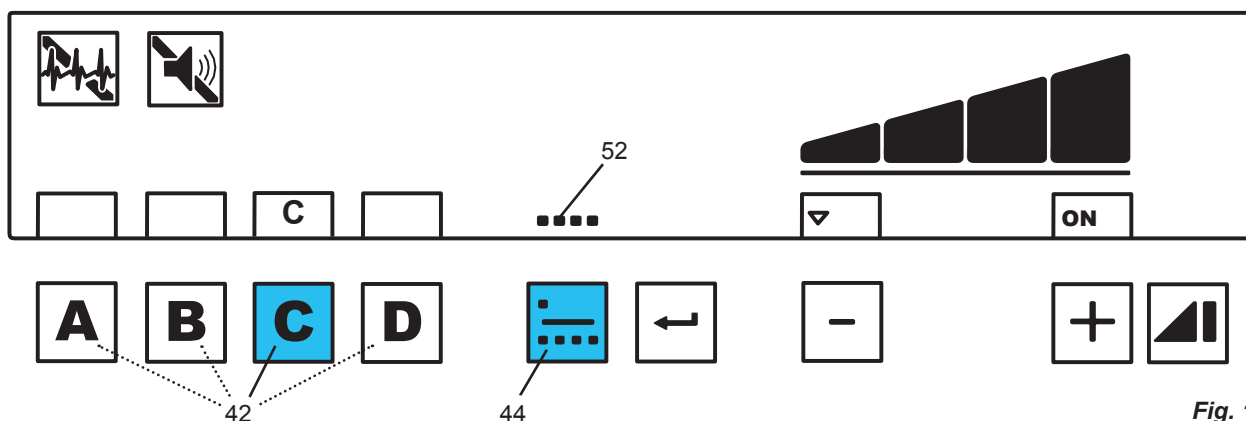


Fig. 11

Select multi use:

- ⇒ Press operation mode key (44) repeatedly until
 - ◆ the multi mode symbol (52) is shown.
 - ◆ The suction level display will show the level which was last used in the multi use mode.

Open a suction channel by:

- ⇒ Pressing the relevant suction channel key (42).
- or
- ⇒ By switching on one of the electrical appliances connected to the Quattro Control-Box.
 - ◆ The letters of the opened suction channels are shown in the display.

It is possible to change the suction level and select the turbo level with and without an opened suction channel.

When one suction channel is opened, the suction turbine with the set suction level is activated.

If multiple suction channels are opened, the extraction unit increases its performance, so that all suction points achieve their allocated set suction performance.

i *The suction level and the selected turbo level are automatically saved and reset when the multi use mode is selected the next time.*

5.4.3 Automatic Operation / Manual Operation

In the single use and also in the multi use mode, the extraction unit can be operated in:

- Automatic operation or
- Manual operation

Automatic operation:

With the appliances, which are connected to the Quattro Control Box, it is possible to switch the suction turbine on and open the relevant suction channel (when the electrical appliance is activated) or close the relevant suction channel (when the electrical appliance is deactivated).

The switching threshold, the point in time when a suction channel is opened / closed, can be set individually for each suction channel (see section 5.6.4).

Manual operation:

The suction channel is opened by pressing the key (42, Fig. 2).

5.4.4 Priority of the Quattro Control-Box

The signals from a connected QCB have priority over the suction channel keys.

This means:

- A suction channel opened by the QCB cannot be closed by a suction channel key.
- If a suction channel has been opened by a suction channel key, and then in addition by the QCB, this can no longer be closed via suction channel key, but instead can only be closed by the QCB.

5.4.5 Favorite Status

ONLY possible in the Multi Use mode!

The favorite status allows ONE suction channel to be designated an individual suction level.

If the suction channel with the favorite status is opened, the suction level is adjusted to this value and then also applies to all opened suction channels.

If the suction channel with the favorite status is closed, the suction level then returns back to the level selected in the multi use mode.

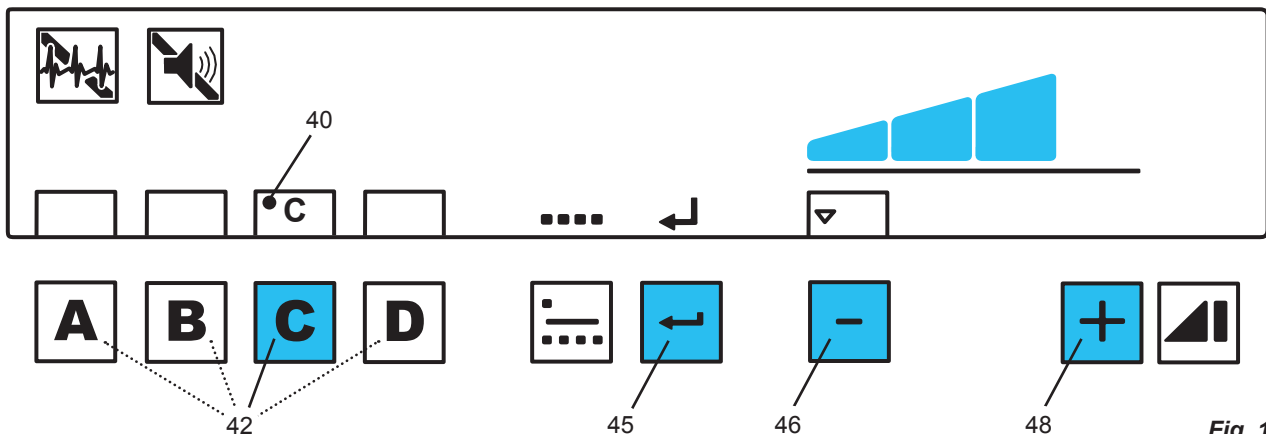


Fig. 12

To designate the favorite status and suction level:

⇒ Press and hold down the suction tube key (42) of the selected tube until:

- ◆ The letter allocated to that particular suction channel blinks.
- ◆ A dot (40) shows the favourite status.

⇒ Using ⊕ / ⊖ keys (46, 48) select the required suction level.

⇒ Press the enter key (45).

- ◆ A short acoustic signal confirms that the favourite status has been assigned.

To cancel this procedure:

⇒ Press the menu key (30, Fig. 2).



It is not possible to select the turbo level on a suction tube which has the favorite status.

Cancel favorite status:

⇒ Press and hold down the suction tube key (42) from the channel with the assigned favorite status.

- ◆ The dot next to the letter will disappear.

5.5 Filter Cleaning

In order to guarantee maximum suction performance, the extraction unit has an automatic fine filter unit cleaning mechanism.

The cleaning process takes approximately 20 sec. During this time no suction channel can be opened.

5.5.1 Cleaning when switched on

The cleaning process takes place each time the extraction unit is switched on.

- ◆ The display shows “Cod01”.

5.5.2 Cleaning during a work break

An indication that the filter will be cleaned in the next work break is shown as follows:

- ◆ The display shows “Cod01”.
- ◆ An acoustic signal is sent 3 x.

The cleaning process will take place as long as no suction channel is open.

5.5.3 Enforced cleaning

If it is not possible for the extraction unit to carry out the cleaning process during a work break, (see section 5.5.2) an enforced cleaning procedure will take place as soon as the suction performance falls below a fixed set value.

Enforced cleaning:

- ◆ The error “Err01” is shown in the display.
- ◆ An acoustic signal is sent 3 x.
- ◆ All suction channels are closed.
- ◆ The automatic cleaning process takes place.
- ◆ Suction channels which were previously open before cleaning, are then reopened.

5.6 Programming

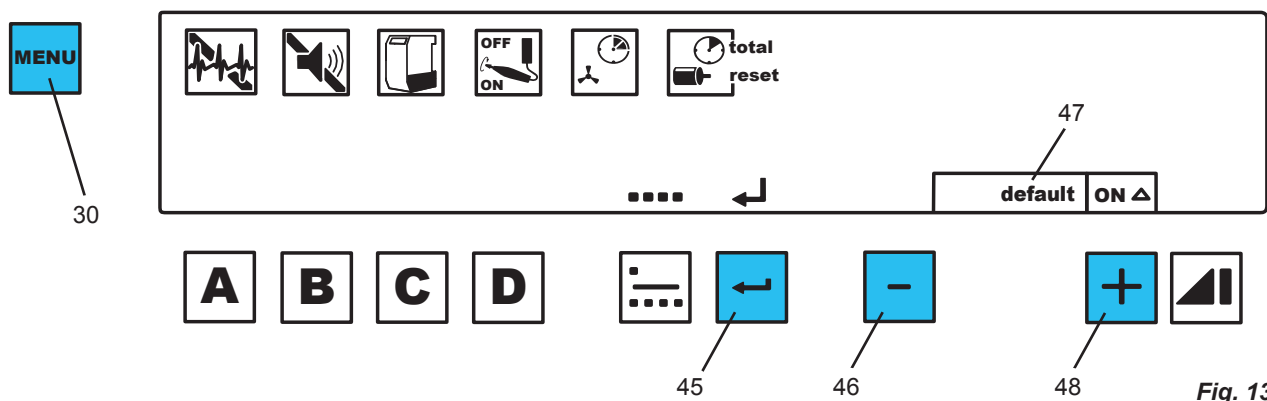


Fig. 13

The menu function enables various extractor settings to be preset and saved.

In order to set different parameter, press the menu key (30) repeatedly.

To confirm and save the adjusted settings press the enter button (45). An audible signal confirms that the settings have been successfully saved.

If you do not wish to save the adjustments, press the menu key again (30) and the programming will be aborted.

If the word “default” is shown in the display (47) press the buttons ⊕ and ⊖ (46, 48) together to revert to the standard factory settings (see table in section 6.4).

5.6.1 Self Diagnosis

The diagnosis symbol (31) shows whether the self diagnosis has been activated or not:

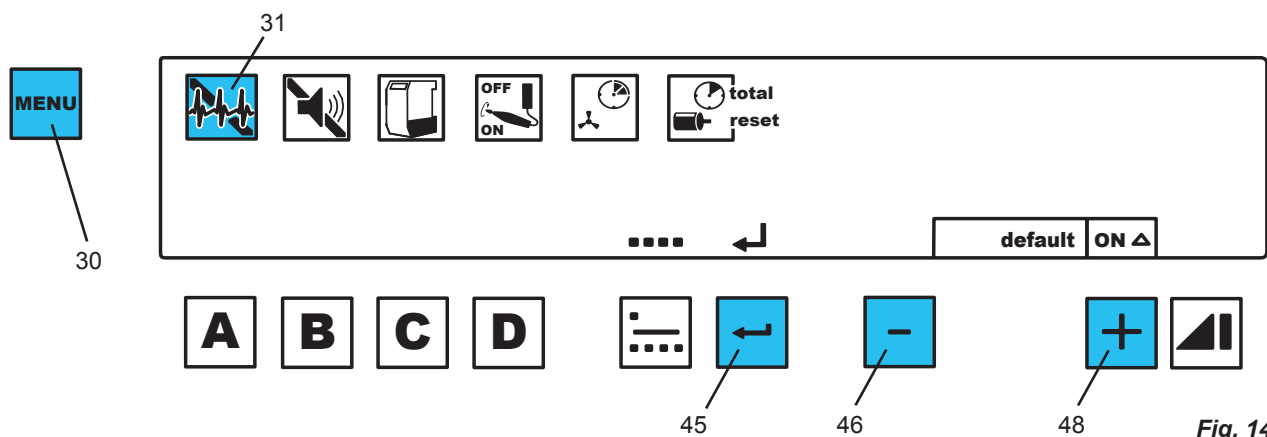


Fig. 14

When activated, the extraction unit carries out a self diagnosis immediately after having been switched on.

The suction turbine is switched on and each suction channel is opened individually in order to remove possible deposits from the suction tubes.

This process takes approximately 30 seconds.

If a fault is discovered during the self diagnosis, then this will be signaled with an error code (see section 7.1). Please continue as described in section 7.1.

⇒ Press menu key (30) 1 x.

- ◆ The diagnosis symbol (31) blinks.

⇒ Switch the self diagnosis ON or OFF using the ⊕/⊖ buttons (46, 48).

⇒ Press the enter button (45).

5.6.2 Audible Signal

Various settings and warnings are confirmed or alerted via an audible signal. This signal can be switched on or off. The audible signal symbol (32) shows whether the signal is on or off.



It is not advisable to switch these acoustic signals off.

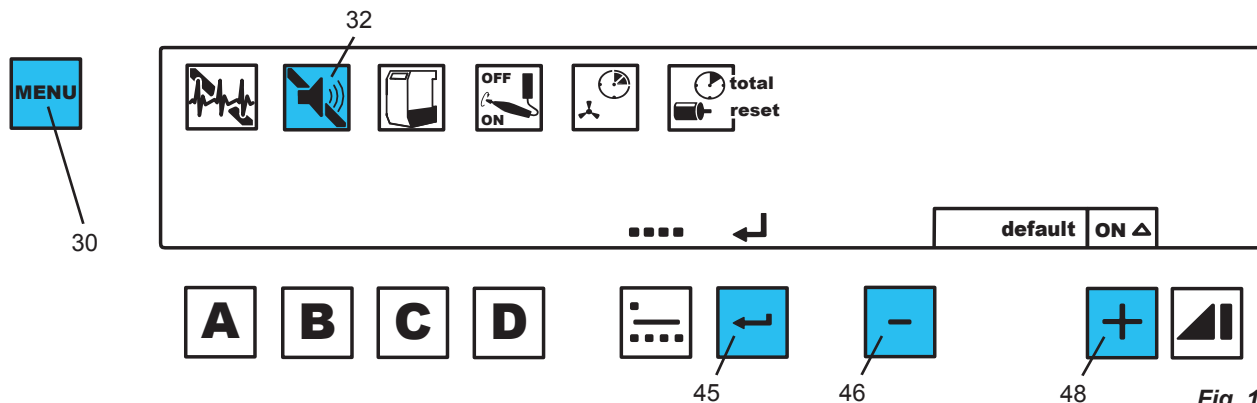


Fig. 15

⇒ Press menu key (30) 2 x.

◆ The audible signal symbol (32) blinks.

⇒ Switch the self diagnosis ON or OFF using the ⊕ / ⊖ buttons (46, 48).

⇒ Press the enter button (45).

5.6.3 Emptying the Dust Drawer

Depending on the operating time, the suction turbine will demand that the dust drawer on the extraction unit is emptied.

This time can be set in five stages (1, 2, 3, 4, 5):

Stage	Time / h
1	20
2	50
3	100
4	150
5	200

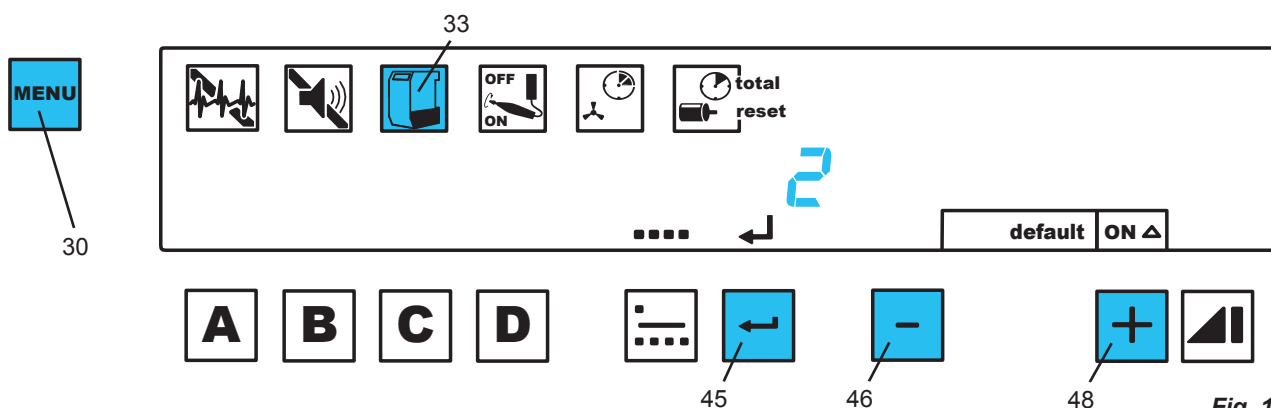


Fig. 16

⇒ Press menu key (30) 3 x.

◆ The dust drawer symbol (33) blinks.

◆ The set stage is shown in the display.

⇒ Change the level using the / buttons (46, 48).

⇒ Press enter button (45).

5.6.4 Switch On Threshold

The switch on threshold for automatic operation (see section 5.4.3) can be individually set and saved for each suction channel.

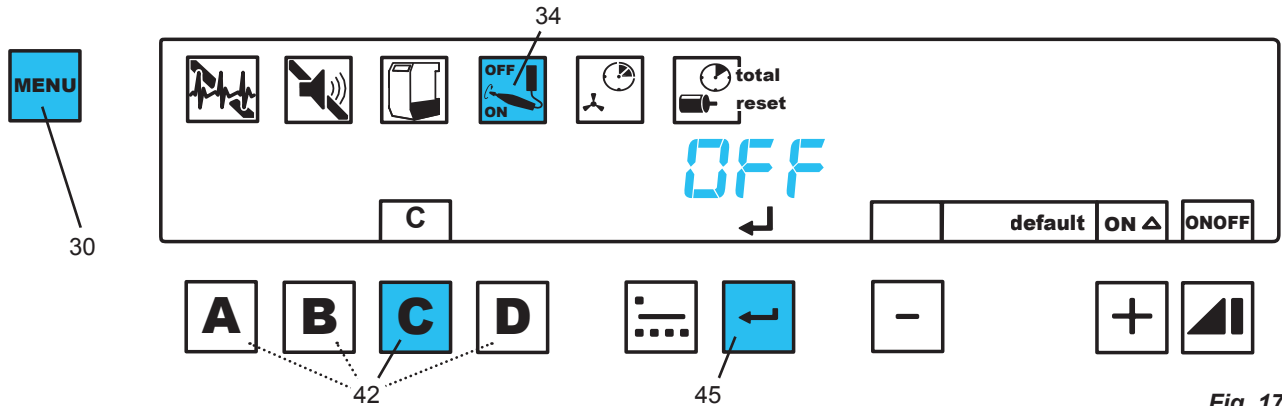


Fig. 17

- ⇒ Press menu key (30) 4 x.
 - ◆ The start-up threshold symbol (34) blinks.
 - ◆ The letters A, B, C, D blink.
- ⇒ Press the suction hose button (42) of the suction which is to be adjusted
 - ◆ The letter of the selected hose is indicated.
 - ◆ The display shows „OFF“.
- ⇒ Switch the electrical appliance off. Units equipped with a stand-by mode should be switched to stand-by (e.g. in the case of a hand piece, only switch the controller on without activating the hand piece).
- ⇒ Press the enter button (45).
 - ◆ The display shows “ON”.

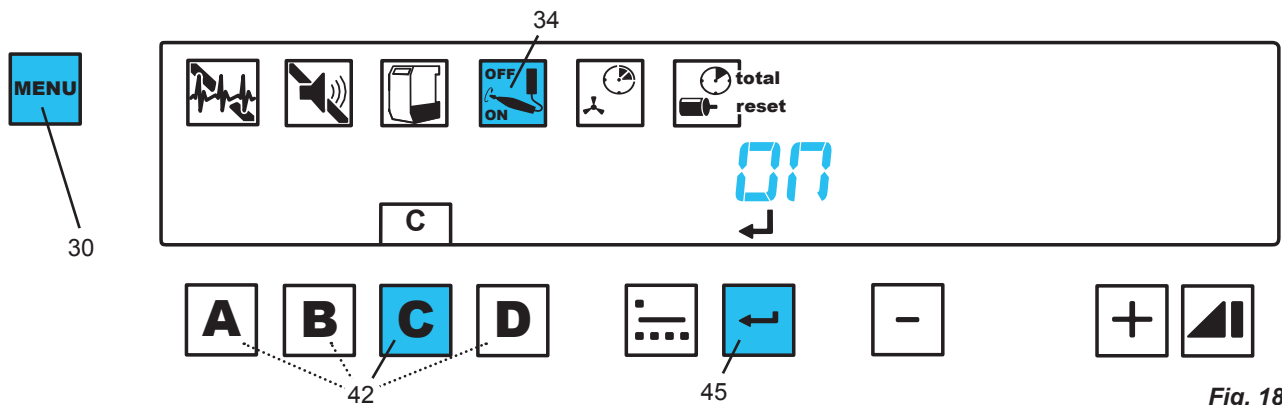


Fig. 18

- ⇒ Switch the electrical appliance on, e.g. activate the hand piece at the speed at which you require the suction hose to open.
- ⇒ Press the enter button (45) (e.g. whilst the hand piece is in use.).
- ⇒ Select the next suction hose which you would like to adjust, or quit this menu by pressing the menu key (30).

i After selecting the suction channel, press the ⊕/⊖ keys both at the same time to set the switch-on and switch-off threshold back to the factory setting (20 W).

5.6.5 Switch Off Threshold (0 - 30 sec.)

i Programmable switch off threshold is only relevant for automatic operation.

i In manual mode press the vacuum channel button to close a vacuum channel immediately. It is only with the last channel that the stopping time is about 3 seconds and cannot be adjusted.

Switch off threshold = the time taken for the suction channel to close after the electrical appliance has been switched off. In other words, from when the pinch valve shuts and the suction turbine switches off (range of adjustment: 0 - 30 seconds).

In order to prevent:

- dust deposits in the suction tube,
- the extraction unit from having to switch on and off too often when the electrical appliance is switched on and off at short intervals,

an individual switch off threshold can be set and saved for each suction channel.

⇒ Press menu key (30) 5 x.

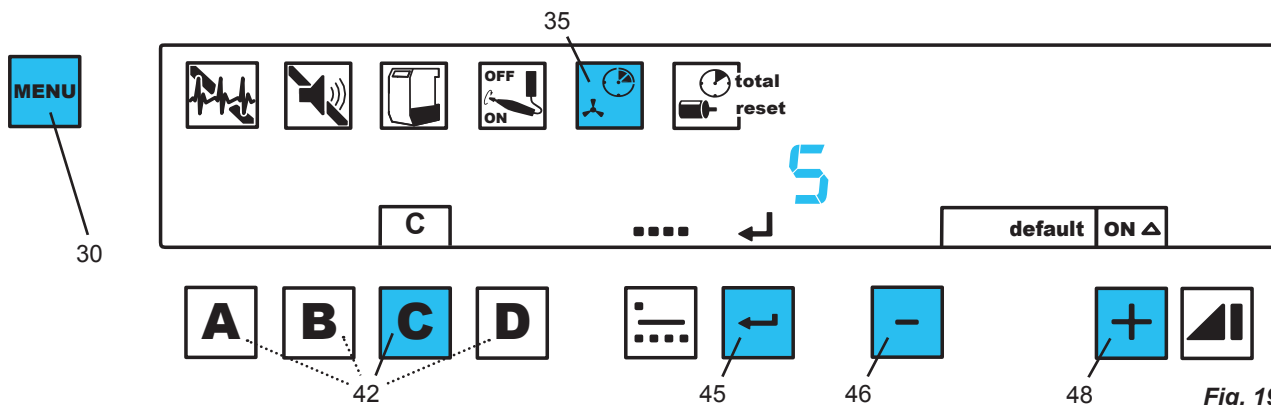


Fig. 19

- ◆ The switch off time symbol (35) blinks.
- ◆ The letters A, B, C, D blink.
- ⇒ Press the suction channel key (42) of the channel which is to be set.
 - ◆ The letter of the suction channel to be set is shown in the display.
 - ◆ In the display, the set switch off time for the suction channel is shown in seconds.
- ⇒ Using the ⊕ / ⊖ keys (46, 48) alter and set the required switch off time.
- ⇒ Press the enter key (45).
- ⇒ Using the suction channel key (42), select the next suction channel or leave this mode by pressing the menu key (30).

5.6.6 Operating Hours Counter

The operating hours counter records the turbine running time.

- Total operating hours: cannot be reset to zero.
- Partial operating hours: can be reset to zero, e.g. after the turbine has been changed. It also records how often the operating hours counter has been reset.

Read total operating hours:

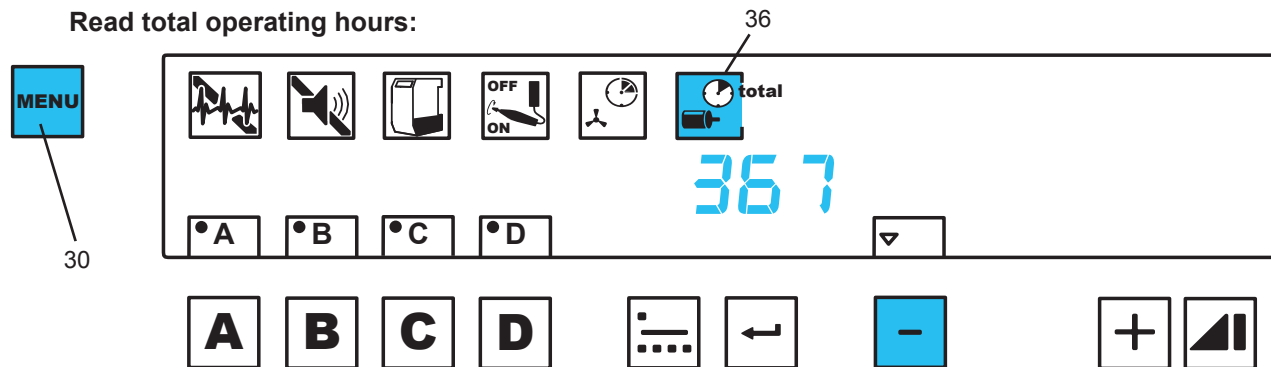


Fig. 20

- ⇒ Press menu key (30) 6 x.
 - ◆ The operating hours symbol (36) blinks.
 - ◆ "Total" is displayed (36).
 - ◆ The total amount of operating hours is displayed.
- ⇒ To leave the mode press menu key (30) 2 x.

Reset partial operating hours:

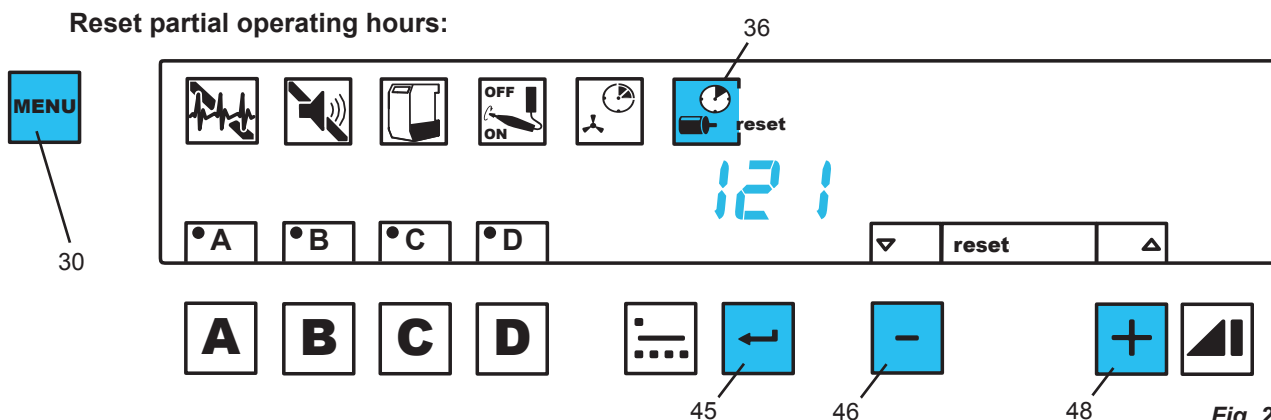
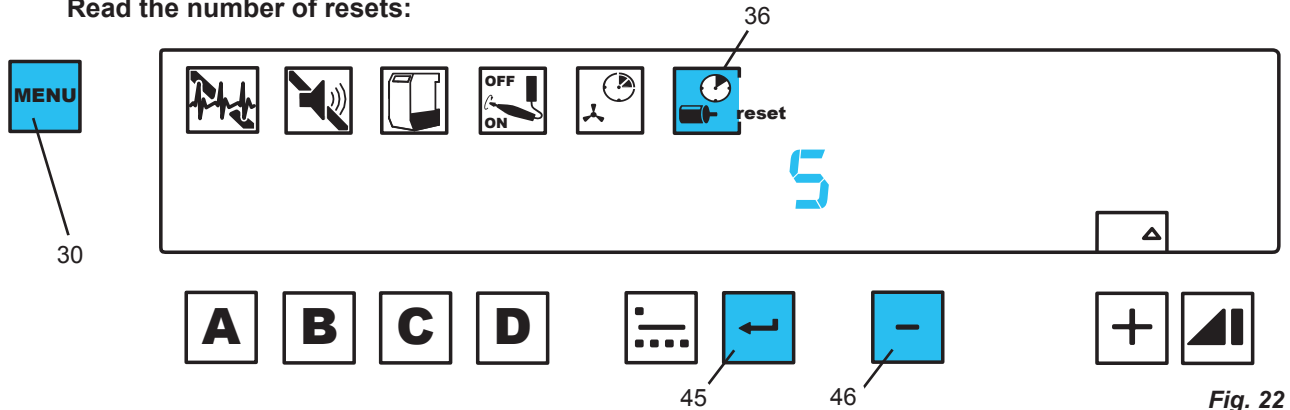


Fig. 21

- ⇒ Press menu key (30) 6 x.
 - ◆ The operating hours symbol (36) blinks.
- ⇒ Press \square key (46).
 - ◆ “Reset” is shown (36).
 - ◆ The number of operating hours since the last reset is shown.
- ⇒ Press and hold \oplus / \ominus keys (46, 48) at the same time until the operating hours are reset to zero.
 - ◆ The digit “zero” blinks.
- ⇒ To leave this mode press key (30) or press the enter key (45).

Read the number of resets:

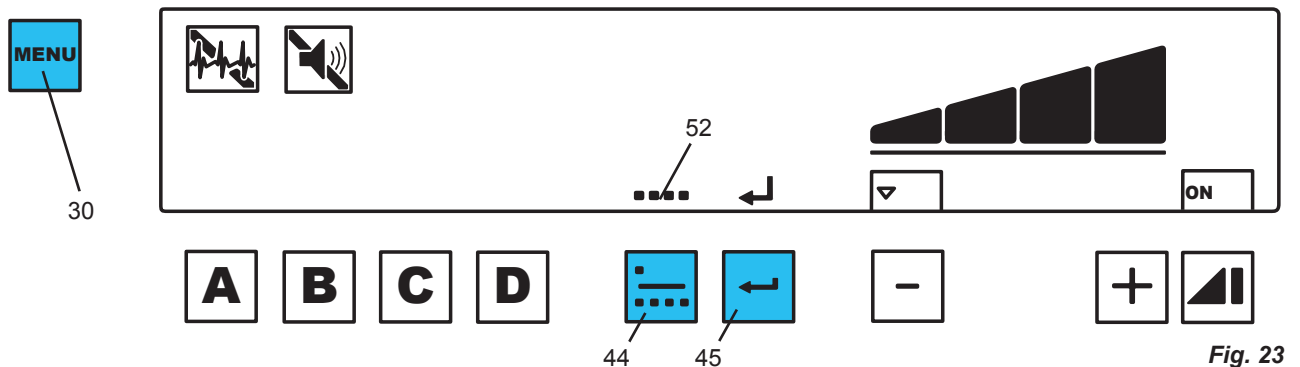


- ⇒ Press menu key (30) 6 x.
 - ◆ The operating hours symbol (36) blinks.
- ⇒ Press \square key (46) 2 x.
 - ◆ “Reset” is displayed.
 - ◆ The display shows “no” (= number) and how often the operating hours counter has been reset.
- ⇒ To leave this mode press key (30) or press the enter key (45).

i Using the \oplus / \ominus keys it is possible to alternate between the functions “read total operating hours” / “reset operating hours” / “see number of resets” without leaving this menu item.

5.6.7 Single / Multi Use

This menu item determines which operating mode will be activated after the unit is switched on.



- ⇒ Press menu key (30) 7 x.
 - ◆ Either the single use symbol (51, Fig. 10), or the multi use symbol (52) will blink.
- ⇒ Press the operating mode key (44) many times until the required operating mode is set.
- ⇒ Press the enter key (45).

6. Cleaning / Maintenance



Inside the extractor there are no parts which require maintenance.
Opening the device, other than for the processes described below, is not permissible!

6.1 Emptying the Dust Drawer

After 95 % of the set time (see section 5.6.3) has elapsed, the unit will demand the dust drawer to be cleaned:

- ◆ The dust drawer symbol blinks (33, Fig. 2).

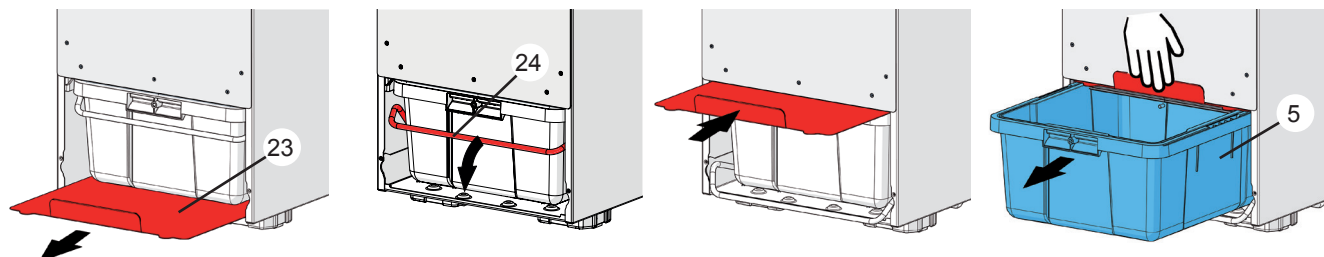


Fig. 24

Remove dust drawer:

- ⇒ Pull the front panel off towards the front (4, Fig. 1).
- ⇒ Remove the locking plate entirely (23).
- ⇒ Open the fixture bracket (24).
- ⇒ Push the locking plate in completely above the dust drawer and hold it tight when pulling out the dust drawer.
- ⇒ Pull out the dust drawer (5) and empty.
- ⇒ Check the profile seal on the dust drawer; change it if it is damaged.

Replace the dust drawer:

- ⇒ Push the entire dust drawer into the extraction unit.
- ⇒ Pull out the locking plate.
- ⇒ Close the fixture bracket.
- ⇒ Clean the locking plate.
- ⇒ Push the locking back underneath the dust drawer.
- ⇒ First place the base of the front panel onto the unit, then push the upper part of the panel against the snap fasteners to close.



For the dust drawer to be correctly registered the suction must be switched on and the dust drawer must have been removed for at least 15 seconds.

6.2 Changing the Fine Filter



Do not wash the fine filter or try to clean it in any other way!

If the filter is damaged, there is a risk that the device will become damaged!

If the filter is damaged, please change immediately.

The filter is cleaned automatically on a regular basis (see section 5.5).

If the cleaning process starts to occur in increasingly short intervals, or if the suction performance is inadequate even after cleaning, then the fine filter must be changed.

Renfert recommends changing the fine filter every 2 to 3 years.

To change the fine filter:

Dismantle the fine filter:

- ⇒ Unpack the new fine filter and use the packaging as a waste bag to dispose of the old fine filter.
- ⇒ Switch the extraction unit on.
- ⇒ Pull the front panel off (4, Fig. 1) towards the front.
- ⇒ Remove the 12 screws (26) from the cover plate (24) and remove this.
- ⇒ Unscrew the fixing screws (25) from the fine filter.
- ⇒ Tilt the fine filter (6) gently downwards and pull out forwards.
- ⇒ Pack the fine filter into the waste bag and dispose of properly.

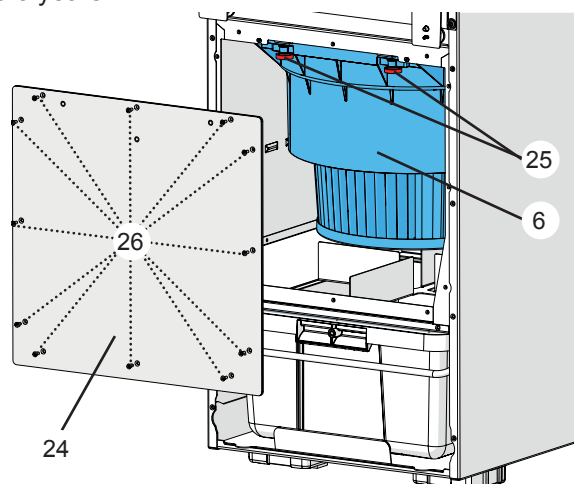


Fig. 25



Before installing, vacuum the inside space of the extraction unit and clean the sealing surface!

Installing the new fine filter:

- ⇒ Place the rear edge of the fine filter into the guide rails (27), push in completely and flip up and close.
- ⇒ Insert fixing screws (25, Fig. 25) and screw closed.
- ⇒ Replace the cover plate and close with the screws.
- ⇒ First place the base of the front panel onto the unit, then push the upper part of the panel against the snap fasteners to close.



If it is not possible to close the cover plate, then the fine filter has not been completely returned into the housing, or the fine filter is situated too low due to the fact that the fixing screws (25, Fig. 25) have not been tightened sufficiently.

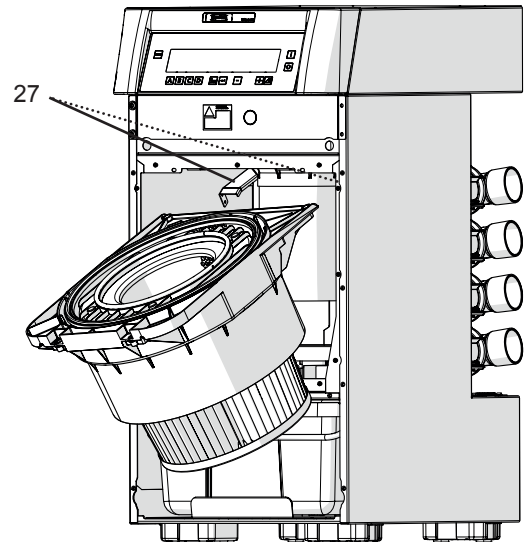


Fig. 26

EN

6.3 Safety Fuses



If a safety fuse is repeatedly released, this means a safety switch within the device is defect. Please send the device in for repair!

6.3.1 Extraction

The extractor is safeguarded by two device overload switches (14).
If an overload switch is released, it can be reset by pressing the button back in.

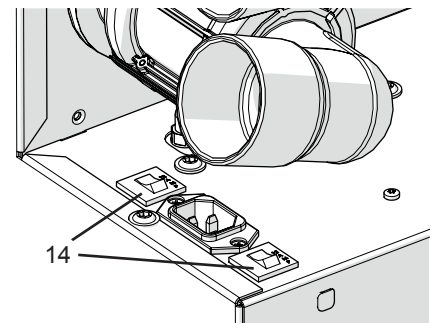


Fig. 27

6.3.2 Quattro Control-Box

► Only the 230 V Version

The Quattro Control-Box is protected with 2 fine wire fuses. Replace fuses only with suitable fuses stating the specified data, see section 8.2. Technical Data.



Never install fuses with greater values.

Changing the fuses:

- ⇒ Unplug the power cable from the QCB.
- ⇒ Using a screwdriver, dismantle the fuse holder (27) and pull out as far as it will go.
- ⇒ Remove the defect fuse and replace with a new fuse in the same position (close to the housing).
- ⇒ Insert the fuse holder as far as it will go, until it locks in place.

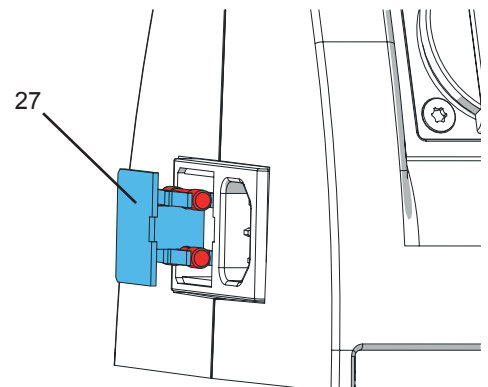


Fig. 28

6.4 Factory Set Parameter

When the function “reset to factory set parameter” is activated, individually set information is lost and overwritten by factory set values.

This does not apply for the operating hour values and the threshold values for automatic operation.

Return to factory settings:

⇒ Extraction off

⇒ ⊕ and ⊖ Press button (46, 48, Fig. 2) and keep pressed.

⇒ Extraction on

⇒ ⊕ and ⊖ Press button (46, 48, Fig. 2) and keep pressed.

◆ An audible signal will confirm the factory set parameter is saved and the display will indicate „rES“.

Factory set parameter:

Function / Feature	Adjustment Range	Factory Parameter
Mode	Single / multi use	Multi use
Suction level	1 - 4	2
Turbo function	On / Off	Off
Operating time until the dust drawer is emptied	1 - 5	3
Self diagnosis (after switching on)	On / Off	On
Acoustic signal	On / Off	On
Favorite status	A, B, C, D,	Not allocated
Switch off threshold suction turbine	0 - 30 Sec.	3 Sec.

6.5 Spare Parts

You can find components subject to wear and the spare parts on the spare part list in the internet at www.renfert.com/p918.

The components excluded from the warranty (such as consumables or parts subject to wear and tear) are marked on the spare part list.

Serial numbers, manufacture date and device type can be found on the device identification plate.

7. Troubleshooting

Error	Possible Cause	Corrective Action
Extractor stops suddenly for no apparent reason and a error code is indicated in the display.	<ul style="list-style-type: none"> An error has been detected. 	<ul style="list-style-type: none"> See table “Error Codes” If the instructions are of no help to you, or the error code is not listed: <ul style="list-style-type: none"> - Make a note of the error code. - Send the device in for repair. - Inform the repair service which error code was noted.
The suction performance is inadequate at one suction point.	<ul style="list-style-type: none"> The set suction level is too low. The suction tube is either blocked or has a leak. 	<ul style="list-style-type: none"> Select a higher suction level. Check the suction tube. Please observe the notes in section 4.5.
Dust bag over full.	<ul style="list-style-type: none"> The set value for the dust drawer fill level is too high. The dust drawer was removed for longer than 15 seconds without emptying. 	<ul style="list-style-type: none"> Set a smaller value (see section 5.6.3). If you remove the dust drawer, please always empty it.
The dust drawer full signal lights up, although the drawer is not yet full.	<ul style="list-style-type: none"> The set value for the dust drawer fill level is too low. 	<ul style="list-style-type: none"> Set a higher value for the fill level (section 5.6.3).
Suction hose cannot be closed by pressing the suction hose button.	<ul style="list-style-type: none"> An electrical appliance which is connected to the suction hose is still in operation. 	<ul style="list-style-type: none"> Switch the connected electrical appliance off.

Error	Possible Cause	Corrective Action
The letter from a suction channel is blinking.	<ul style="list-style-type: none"> The suction channel is closed and the switch off threshold has not yet been reached. 	<ul style="list-style-type: none"> No fault.
The letter from a suction channel is blinking and the suction channel cannot be opened.	<ul style="list-style-type: none"> In the single use mode only one suction channel can be opened at a time. There is currently a suction channel already open. 	<ul style="list-style-type: none"> Close one open suction channel first and then open the other. Select the multi use mode, but to do so all suction channels must first be closed.
It is not possible to change between single and multi use mode.	<ul style="list-style-type: none"> A suction channel is still open. 	<ul style="list-style-type: none"> Close all suction channels.
There is no audible signal.	<ul style="list-style-type: none"> The audible signal is deactivated. 	<ul style="list-style-type: none"> Activate audible signal (Section. 5.6.2).
Suction hose cannot be closed by pressing the suction hose button.	<ul style="list-style-type: none"> An electrical appliance connected to the QCB is still in use. 	<ul style="list-style-type: none"> Switch the appliance connected to the QCB off, see section 5.4.4.
The extraction unit requires filter cleaning at frequent intervals.	<ul style="list-style-type: none"> The diameter of the suction tube is too narrow, because a small suction port was connected to the suction point. The fine filter unit is so dirty, that it is no longer possible to clean. The system has a leak. 	<ul style="list-style-type: none"> Use the original suction tubes and install a suction port adapter if necessary (see accessories). Change fine filter adapter (section. 6.2). Check to make sure that the dust drawer and the fine filter unit have been replaced correctly and that the seals are not damaged. Check to make sure that the dust area cover panel has been replaced correctly and is fixed securely in place. Check to make sure the pinch valve seals are secure.
The suction does not start when an electrical appliance connected to the QCB is activated.	<ul style="list-style-type: none"> The extraction unit is not switched on. Device fuse has been triggered. QCB is not connected with the extraction unit. On / off threshold of the suction channel is too high. A connected remote control has priority over the QCB for this suction channel. 	<ul style="list-style-type: none"> Switch the extraction unit on (section 5.1). Check fuses, if necessary replace fuse (section 6.3.1). Connect the QCB to the extraction unit (section 4.6.1). Adjust the on / off threshold (section 5.6.4). Press the mouse scroll wheel from the relevant suction channel to give the QCB priority again.
The electrical appliance connected to the QCB cannot be operated.	<ul style="list-style-type: none"> QCB is not connected to a power supply. 	<ul style="list-style-type: none"> Connect the QCB to a power supply (section 4.6.1).
Suction begins, even though no appliance connected to the QCB has been activated.	<ul style="list-style-type: none"> The on / off threshold from the suction channel is too low. 	<ul style="list-style-type: none"> Check which suction channel is open, the relevant letter will be shown in the display. Adjust the on / off threshold from that particular suction channel (Section 5.6.4).
The suction does not stop when the electrical appliance is switched off.	<ul style="list-style-type: none"> The electrical appliance was not connected to the QCB. The on / off threshold is set too low. A connected remote control has priority over the QCB for this suction channel. 	<ul style="list-style-type: none"> Connect the electrical appliance to the QCB (section 4.6.2). Adjust the on / off threshold (section 5.6.4). Press the mouse scroll wheel from the relevant suction channel to give the QCB priority again.
The fault "Err14" appears when programming the on / off threshold for a handpiece.	<ul style="list-style-type: none"> The rpm you have selected on the handpiece means the difference between stand-by power and operating current is too low. 	<ul style="list-style-type: none"> Program a higher rpm on the handpiece to activate the on / off threshold.

Error	Possible Cause	Corrective Action
It is not possible to find a satisfactory setting for the on / off threshold.	<ul style="list-style-type: none"> Some older handpieces do not provide sufficient signal for the automatic switch on. 	<ul style="list-style-type: none"> Switch the suction channel on manually (see section 5.4.3).
The fuse in the QCB is triggered when a connected electrical appliance is switched on.	<ul style="list-style-type: none"> The total power consumption of the activated appliances is too high. 	<ul style="list-style-type: none"> Please observe the max. connected load for the QCB (see section 8.2).
An audible sound of compressed air is escaping from the deactivated device.	<ul style="list-style-type: none"> The float for the automatic drainage function in the pneumatic unit has slipped out of its correct position, i.e. due to horizontal transportation. 	<ul style="list-style-type: none"> Remove the device from the compressed air connection and then reconnect it. If necessary, repeat this step 2 - 3 times.

7.1 Error codes

If the following error code appears during operation or self-diagnosis, please continue as follows:

⇒ Switch the device off for 1 minute.

⇒ Deal with the fault as described in the table.

⇒ Switch the device back on.

For all other error codes, switch the unit off and then back on again.

If the error code is repeatedly indicated:

⇒ Make a note of the error code.

⇒ Contact the repair service.

Error Code	Cause / Meaning	Corrective Action
Cod 01	<ul style="list-style-type: none"> Fine filter unit requires cleaning. Automatic cleaning will be carried out. 	<ul style="list-style-type: none"> Stop work and wait for the automatic cleaning. Wait until the automatic cleaning has finished
Err 01	<ul style="list-style-type: none"> Enforced cleaning. 	<ul style="list-style-type: none"> Wait until the enforced cleaning procedure is finished (see also section 5.5.3).
Err 02	<ul style="list-style-type: none"> Air pressure (compressed air) is too low. Self diagnosis and filter cleaning is not possible. 	<ul style="list-style-type: none"> Check connected air pressure. Minimum pressure, see "Technical Data". Only use the supplied compressed air tube.
Err 03	<ul style="list-style-type: none"> There is a leak in the system. 	<ul style="list-style-type: none"> Check to make sure that the dust drawer and the fine filter unit have been replaced correctly and that the seals are not damaged. Check to make sure that the dust area cover panel has been replaced correctly and is fixed in place. Check to make sure the pinch valve seals are secure. If a pinch valve is defect, switch the self diagnosis off. Limited operation is possible until a new pinch valve is available. (See section 5.6.1).
Err 04	<ul style="list-style-type: none"> Overheating of the electronic components. 	<ul style="list-style-type: none"> Allow the device to cool down. Make sure the device has better ventilation. Check that the exhaust air is able to escape unhindered.
Err 05	<ul style="list-style-type: none"> Overheating of the turbine electronics. 	<ul style="list-style-type: none"> Allow the device to cool down. Ensure the device has better ventilation; possibly with the addition of a cooling tube (see section 4.2.1). Check that the exhaust air is able to escape unhindered.
Err 11	<ul style="list-style-type: none"> Quattro Control-Box is not connected. 	<ul style="list-style-type: none"> Check the Quattro Control-Box connection (see section 4.6.1).
Err 12	<ul style="list-style-type: none"> No dust drawer. 	<ul style="list-style-type: none"> Insert the dust drawer and check it is in the correct position. Check if the detection magnets on the dust drawer still exist.
Err 13	<ul style="list-style-type: none"> The dust drawer has not been emptied. 	<ul style="list-style-type: none"> Empty the dust drawer. In order for the control to recognise the empty drawer, it must have been outside of the device for at least 15 seconds. The device must be left switched on whilst emptying!

Error Code	Cause / Meaning	Corrective Action
Err 14	<ul style="list-style-type: none"> • Error made when adjusting the on / off threshold. • The difference between stand-by power and operating current is too low. 	<ul style="list-style-type: none"> • Cancel the on / off threshold setting using the menu key (30, Fig. 2) and continue as described in section 5.6.4. • Set the on / off threshold with a higher rpm on the handpiece. • Operate the suction channel manually.
Err 15	<ul style="list-style-type: none"> • Quattro Control-Box without power. 	<ul style="list-style-type: none"> • Check the power supply for the Quattro Control-Box (see section 4.6.1).
Err 16	<ul style="list-style-type: none"> • Vacuum power for cleaning is too low. 	<ul style="list-style-type: none"> • Make sure the pinch valve in the suction channel is not blocked and that the membrane in the pinch valve is not defect. • Make sure the dust drawer is in its correct position.
Err 18	<ul style="list-style-type: none"> • Remote control distribution box not connected. • Distribution box faulty. 	<ul style="list-style-type: none"> • Check remote control distribution box connection. cf. also instructions for 2933 0420, remote control starter kit. • Send distribution box in for repair.

8. Technical Data

8.1 Silent V4

Nominal voltage	230 V
Permissible mains voltage / mains frequency:	220 - 240 V +/-10 % 50 / 60 Hz
Power consumption *):	7.5 A
Electrical power of suction turbine *):	1400 W
Mains input fuse:	2 x 10 A(T)
max. connection pressure:	8 bar [116 psi]
min. connection pressure:	4.5 bar [65 psi]
LpA **) (at max. volume flow):	63 dB(A)
Number of suction hoses:	4
Volume flow, max.:	4000 l/min [2.35 ft³/s]
Vacuum pressure, max.:	11 kPa [1.6 psi]
Fine particle filter: - Filter surface area, approx.: - Filterquality:	1.8 m² [70.87 inch] Class M according to EN 60335-2-69
Fill level dust drawer, approx.:	12 l [3.17 US gal]
Dimensions (width x height x depth):	350 x 750 x 590 mm / [13.78 x 29.53 x 23.23 inch]
Weight (empty), approx.:	45 kg [99.36 lbs]
Ø Suction fittings: - Internal: - External:	38 mm [1.50 inch] 45 mm [1.77 inch]

*) Nominal voltage power / Nominal frequency

**) Sound pressure levels according to EN ISO 11202

8.2 Quattro Control-Box

Nominal voltage	230 V
Permissible mains voltage / mains frequency:	220 - 240 V +/-10 % 50 / 60 Hz
max. connected load for appliance socket:	2300 W
max. connected load for QCB in total:	2300 W
Mains input fuse:	10 A (T)
Cable length, approx.:	2 m [78 inch]
Dimensions (width x height x depth):	170 x 130 x 130 mm [6.69 x 5.12 x 5.12 inch]
Weight, approx.:	1 kg [2.2 lbs]

9. Warranty

Provided the unit is properly used, Renfert warrants all components for **3 years**.



A 3-year guarantee, however with 5000 hours maximum motor running time, is granted on the suction motor.

Warranty claims may only be made upon presentation of the original sales receipt from the authorized dealer.

The components excluded from the warranty (such as consumables or parts subject to wear and tear) are marked on the spare part list.

The warranty is voided in the case of improper use; failure to observe the operating, cleaning, maintenance and connection instructions; in case of independent repairs or repairs by unauthorized personnel; if spare parts from other manufacturers are employed, or in case of unusual influences or influences not in compliance with the utilization instructions.

Warranty service shall not extend the original warranty.

10. Disposal Information

10.1 Disposing of Consumables

Full dust bags and filters must be disposed of under compliance with locally applicable regulations. Depending on the material trapped by the filters, protective gear may need to be worn during disposal.

10.2 Disposing of the Unit

The unit must be disposed of by an authorized recycling operation. The selected firm must be informed of all possible health hazardous residues in the unit.

10.2.1 Disposal Instructions for countries in the EU

To conserve and protect the environment, prevent environmental pollution and improve the recycling of raw materials, the European Commission adopted a directive that requires the manufacturer to accept the return of electrical and electronic units for proper disposal or recycling. Within the European Union, units with this symbol should not therefore be disposed of in unsorted domestic waste.



Please contact your local authorities for more information on proper disposal.

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Ideas for dental technology

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