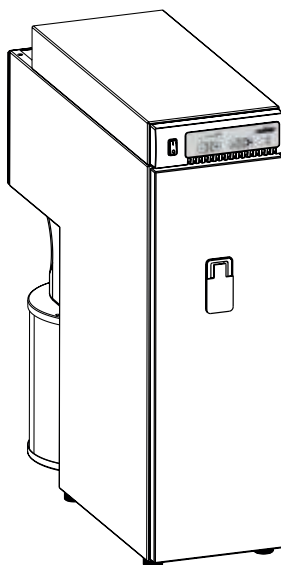


Z1 ECO PRO **Z1 CAM PRO**

Single suction systems



 **zubler**[®]
dental & technik

www.zubler.de

EN 02-2020

Content

0. User information

page 4

0.1 Declaration of conformity

0.2 Intended purpose of use

0.3 Technical requirements

1. Installation of the appliance

page 6

1.1 Scope of supply and accessories

1.2 Installation of the extraction system

1.3 Connection of dust producers

1.3.1 Appliances without interfaces

1.3.2 Appliances with switching output

1.3.3 Appliances with switching output
with a 24 V interface or a 230 V socket

1.4 Intake system

2. Functional description

page 16

2.1 Control unit

2.2 Commissioning

2.3 Automatic operation

2.4 Selecting and saving suction levels

2.5 Current suction power

2.6 Setting the suction overrun time

2.7 Fine tuning of the automatic operation

2.8 Switching the extraction system off

3. Warranty terms	page 22
3.1 Filter bag	
3.2 Main filter	
3.3 Exhaust filter	
3.4 Motor	
3.4.1 Motor replacement	
3.4.2 Carbon brush replacement	
4.5 Spare parts	
3.6 Technical structure	
4. Error Codes	page 33
5. Technical Data	page 36
6. Warranty	page 37
7. Disposal instructions	page 38



Advanced settings are provided by the Zubler Suction-Technology APP , which is available for Android tablets or phones.

Therefore follow the users manual of the Zubler Suction-Technology APP, which is downloadable from www.zubler.de.

0. ■ Introduction

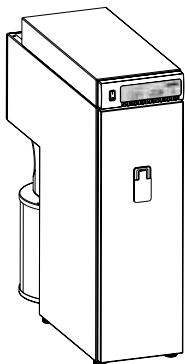
Dear customer,

we are pleased, that you have decided for a Zubler extraction system and hope it will enhance your work. The continuous development of our technology is based on the co-operation with experienced

dental technicians. The focus lies on the aim to optimize the extraction technology in the fields of performance, noise and reliability.

Please read this operating manual carefully in order to ensure a problem-free operation.

0.1 Declaration of conformity



We, Zubler Gerätebau GmbH

Buchbrunnenweg 26
89081 Ulm Jungingen

declare, that the product vacuuming unit

Z1 ECO PRO
Z1 CAM PRO

conforms to the health and safety requirements set out in the directives

2014/30/EC EMV-Directive
2014/35/EC Low-Voltage Directive
2006/42/EC Machines Directive
2011/65/EU RoHS Directive

Any modification not specifically approved by us voids the validity of this declaration.

Kurt Zubler
ceo

0.2 Intended purpose of use

This extraction system is designed exclusively for dry dusts!

Its use for the extraction of other types of dust or gases must be clarified with the manufacturer before putting into operation.

Work must be stopped immediately and the system switched off in the event of the appearance of visible clouds of dust or noticeably insufficient suction power.

Inform your dealer or our service team.

The Z1 is designed for indoor use.

The volume of air circulated by the system and returned to the room may not exceed 50% of the room air volume in closed rooms.

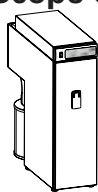
Use is restricted to persons who have been trained in its handling and are authorised to do so. We reserve the right to make changes even without updating this manual.

0.3 Operating Environment

Temperature:	+5°C bis +40°C
Max. permissible relative humidity:	max. 80% (bei 30°C)
Total connected load :	10A
Compressed air, free of oil and moist	min.5,0bar

1. Installation of the appliance

1.1 Scope of supply and accessories



1x **Z1 ECO/CAM PRO**
extraction system



1x Power cable



1x cable C13/C14 (ECOonly)



1.8m hose 38 mm



1x elbow adaptor 50/40 mm



compressed air hose (6mm)



dustbag with 20l

Special Accessories

Item Number



Adaptor C14 / CEE 012-00702



H14-Filter H-Typ 556-0052



Activated carbon filter C-Typ 556-0051



exhaust adapter RD72 /DN75 896-1103



diffusor-holder (without Filter) 556-0057

1.2 Installation of the extraction system

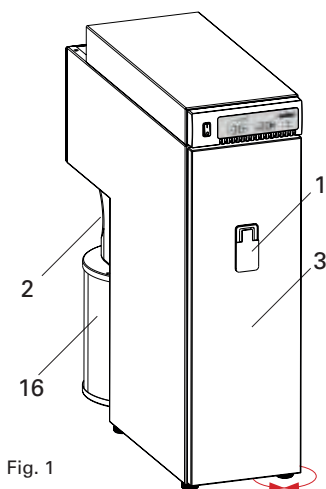


Fig. 1

1	Closure
2	Exhaust connection
3	Filter door
16	Diffusor
30	Exhaust Adaptor

1.2.1 Suction line

- Provide a sufficiently stable and leveled surface. Ensure that the housing does not touch the furniture to avoid noise production by resonances.
- If necessary the unit can be leveled by turning the feet up/down (Fig.1).
- Plug in the muffle of the enclosed suction hose to the intake nozzle (2) and the other side firmly to your intake system.

Use the enclosed 90° adaptor if running sideways.

1.2.2 Exhaust

- If using the unit in non-stop operation, the exhausting air temperature is increased.
- To avoid overheating, the exhausting air must be able to flow out and spread free.
- If this is not possible, the diffusor can be removed and the exhausting air can be guided with a DN75 hose or pipe (Fig.2). Therefore use the optional exhaust-adaptor RD72/DN75 O.No. 896/1103
- To connect the diffusor to the DN75 hose or pipe you will need the optional diffusor-holder O.No. 556/0057 (Fig.3)
- Alternatively it is recommended to guide the exhaust air to the outside.

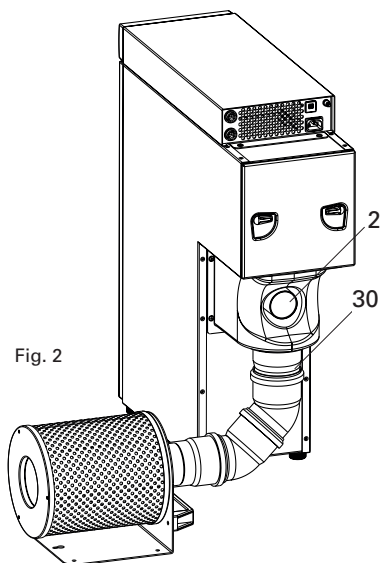


Fig. 2

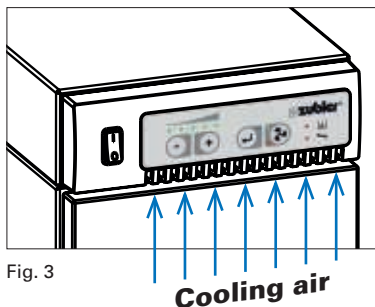


Fig. 3

1.2.3 Furniture integration

If integrating the suction unit into cabinets or niches the following requirements must be taken into account:

- The suction unit must be able to draw cooling air from the front (Fig.4)
- The hot exhausting air which is released on the back of the suction unit, must not reach the front. Therefore it is necessary, that there is a tight barrier surrounding the suction unit, separating the front from the back. Alternatively it is also possible to guide the exhausting air away from the suction unit, see chapter 1.2.2.

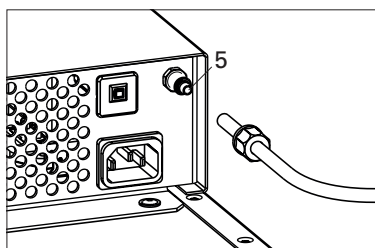


Fig. 4

1.2.4 Compressed air

- The suction unit Z1 PRO requires compressed air for the filter cleaning. The unit must not be used without compressed air. Ensure there is a compressed air supply available with at min. 5 bar, free of oil and moisture.
- Remove the clamp screw of the compressed air connector (5) and insert the enclosed compressed air hose (6mm). Plug the hose firmly on the nozzle and tighten the clamp screw. Connect the quick connector to your compressed air supply.
- Open the Frontdoor (Section 3.1, Fig. 14) and check if the pressure gauge (10) on the pressure reducer shows a pressure of 4-5 bar. The pressure reducer is factory set and must not be changed. Upon abnormal behaviour, check your compressed air supply and contact the Zubler Service.

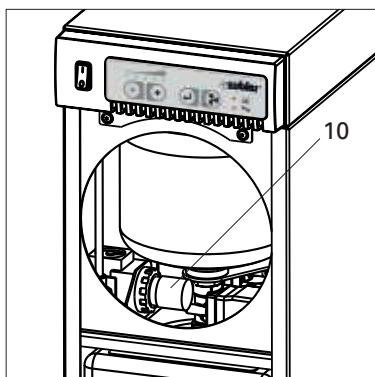


Fig. 5

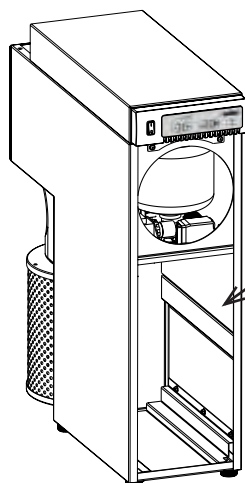


Fig. 6

ZUBLER Gerätebau GmbH	
Buchbrunnweg 26 D-89081 Ulm Tel. +49(0)731 1452-0 / www.zubler.de	
	
Absauganlage Z1-ECO PRO	
Spannung	230V
Gesamtleistung	max. 2000W
Absaugung max.	700W
Automatiksteckdose	1200W
Z1 ECO PRO	00-11111-22
 Made in Germany	

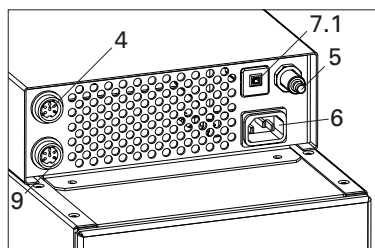


Fig. 7: Connectors CAM

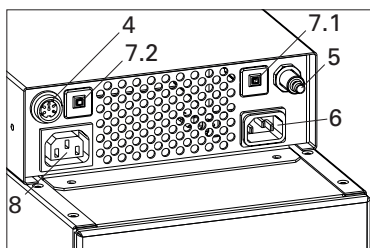


Fig. 8: Connectors ECO

4	Data interface
5	Compressed air connector
6	Mains power supply (IEC C14)
7.1	Main fuse (10A)
7.2	Fuse power socket (6A)
8	Autom. power socket (IEC F)
9	24V interface

1.2.5 Mains connection

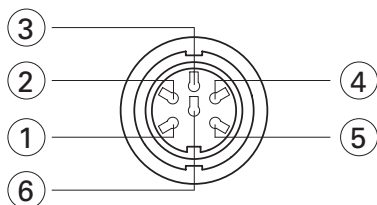
- Before connecting the unit to the mains power supply, check if the voltage given on the number plate (Fig.6) corresponds with the local voltage.
- Plug the enclosed power cord into the IEC C14 connector 6 and the mains plug into a local power socket.
- The suction unit must not be switched ON/OFF with the mains power supply. The mains power supply must be connected permanently.

1.3 Connecting the working tools

1.3.1 Appliances without interface (ECO only)

- If your appliance is equipped with a IEC plug type C14, use the enclosed IEC power cord (C13/C14) to connect the appliance to power socket 8.
The power cord which was enclosed with your appliance is not needed.
- If your appliance is equipped with a CEE mains plug type F or C, you will need an optional CEE-adaptor (CEE/C14) O.No. 012/00701.

The max. power rate of the appliance is limited to 600W (120V) or 1200W (240V)!



1.3.2 Appliances with switching output

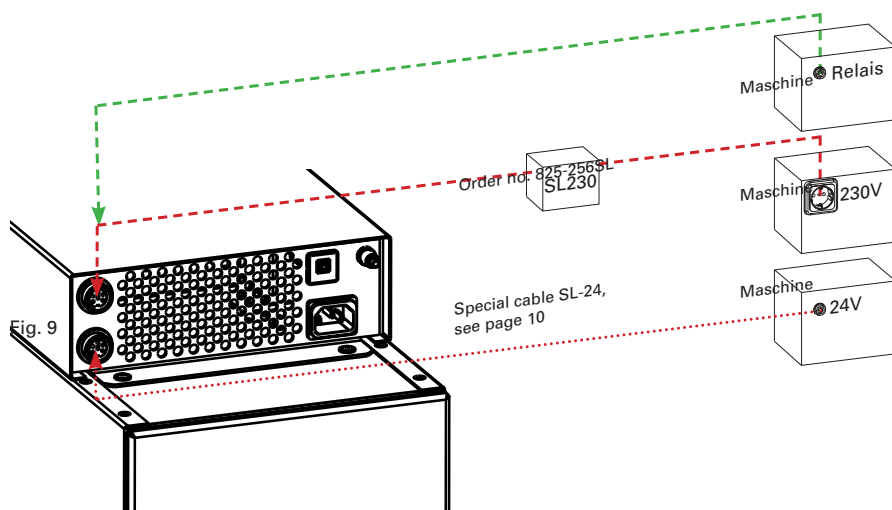
- If your working appliance has a switching output, a control cable (special accessory) can be used to connect to the extraction system. Instead of C13 low temperature power outlet 8, use the data interface 4.

1.3.3 Appliances and machines with 230V output

- If there is a 230 V outlet on the machine for the extraction, use exclusively the SL230 accessory adaptor

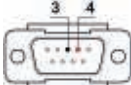
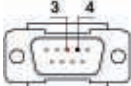


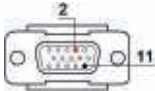
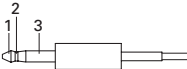
1.3.3 Appliances and machines with 24V interface (CAM only)

- If there is a 24 V control output on the machine for the extraction, you need a special cable from the list on page 10.



Interface cable (accessory)

Ready-made adaptor cables are available for some common CAM systems (only start signal for suction system)

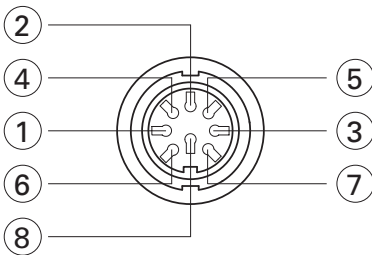
Cable plug	CAM system	Pin-configuration		order no.
		Extraction	Cam	
	imes icore	1 (+)	4	825-25616
	ceramill motion	2 GND	3	
	Amann-Girrbach	1 (+)	3	825-25612
		2 GND	4	
	Vhf 4pol.	1 (+)	1	825-25610
		2 GND	4	
	Vhf 6pol.	1 (+)	1	825-25611
		2 GND	6	
	Sirona	1 (+)	2	825-25615
			7	
			10	
			11	
	Roland	1 (+)	1	825-25613
		2 GND	2	
without	Other	1 (+)		825-25614
		2 GND		

24V interface:

An electrically isolated interface is available for communication with CAM systems and machines with PLC or 24 V connection.

The extraction system can be coupled to the dust-producing machine via this 8-pin connector for the automatic start. Status information of the extraction system can also be received by the machine.

Input voltage and pull-up voltage for the outputs must be provided by the machine. A voltage of between 5 V and 24 V is possible. Outputs are implemented as potential-free optocoupler switched outputs with a 120 Ohm series resistor.



PIN configuration:

Type appliance socket Amphenol 8-pin

Fig. 11:

Pin	Cabel	Configuration
1	white	input 1 24V
2	brown	GND 1
3	green	input 2 24V
4	yellow	GND 2
5	grey	output 1
6	pink	24V CAM
7	blue	output 2
8	red	24V CAM

Commands to the extraction system:

The various extraction power levels can be switched, for example, in relation to the dust level (roughing or polishing).

Filter cleaning can take place in addition to the automatic mechanism of the extraction system during the operating pauses of the machine.

Input 1	Input 2	Function
0V	0V	Extraction OFF
24V	0V	Extraction ON with power level 1
0V	24V	Carry out filter cleaning
24V	24V	Extraction ON with power level 2

Output 1	Output 2	Status
0V	0V	Extraction not ready / OFF
24V	0V	Filter cleaning running
0V	24V	Filter replacement necessary
24V	24V	Extraction ready / Standby

1.4 Intake system

Basic system requirements include optimal particle flow, minimal noise production and ergonomic posture promotion.

The following criteria promote these basic requirements and are specifically adapted to Zubler suction systems.

- Suction funnel R1200,
- Rectangular pipe R1000, R1300
- Rectangular silencer R1100

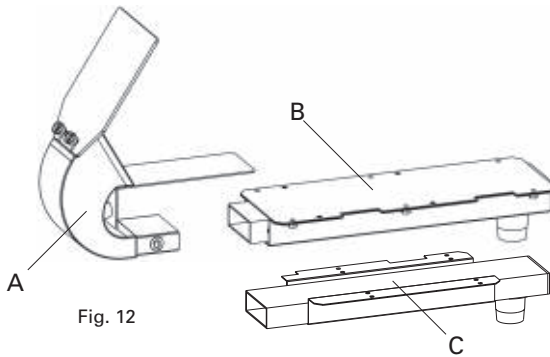


Fig. 12



- | | |
|---|------------------------|
| A | Suction funnel R1200 |
| B | Rectangular pipe R1300 |
| C | Rectangular pipe R1000 |

- The R1200 suction funnel (21) was tested according to GS-IFA-M20 test no. 1305026 for a minimum suction performance of 20 l/s.
- Sitting in the upright position in a posture preserving ergonomically designed chair.
- Workpiece as close as possible to the suction funnel 21; no dust cloud may be visible. Trails of dust must be drawn into the hopper.
- Direction of viewing of the workpiece perpendicular to the protective screen.

2. ■ Functions

2.1 Control unit

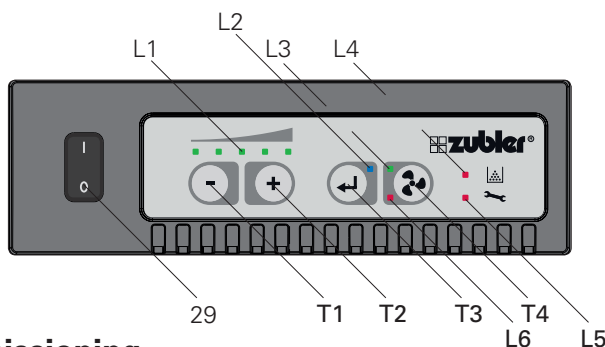


Fig. 13

2.2 Commissioning

L1	LED Power level display
L2	LED Bluetoothanzeige
L3	LED "ON"
L4	LED Filter
L5	LED Service
L6	LED "OFF"
T1	minus-button
T2	plus-button
T3	Return-button
T4	ON / OFF - button
29	Main switch

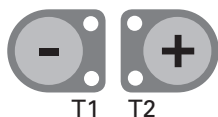
- The extraction system must be installed and connected as described in section 1.
- Switch on the main switch 29.
- One ore more LEDs of the suction level L1 are flashing. After approx. 5s the suction unit is ready and the last saved suction level is displayed. (At setup level 1).
- By pressing the ON/OFF button T4 the suction is started with the selected suction level L1.
- If changing the suction level for the first time, the unit will take some time to calibrate the suction volume and compensate the flow resistances.
- For setting and saving suction levels, see section 2.4.

2.3 Setting up automatic operation (ECO only):

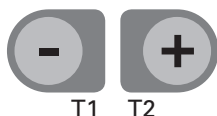
If a dust producing appliance is connected to the extraction system, the sensitivity must be adjusted for an automatic start of the extractor.

The following steps are necessary in order to teach the appliance:

- The appliance (max. 6A, 120V:600W, 240V:1300W) must be connected to the socket of the extraction system.
- Preselect the handpiece speed at which the extraction system should be started.
- Start the appliance or the handpiece and keep it running.
- While the appliance is running, press and hold the buttons T1 (minus) and T2 (plus) at the same time for at least 3 seconds until a signal sounds and the LEDs of the display L1 light up. The extraction system will start running for approx. 3 seconds.
- Still keep the appliance running.
- As soon as another signal sounds and the LEDs of the display L1 start flashing, switch off the appliance or stop the handpiece immediately.
- Wait until a final signal sounds and the LEDs of the display L1 show the preselected suction level again.



2.4 Selecting and saving suction levels



- The suction levels 1 – 5 can be selected with the T1 (minus) and T2 (plus) buttons.
- The suction level shown on the display L1 is the currently saved level with which the extraction system switches on.

Stufe	Suction flow
1	20 l/s
2	25 l/s
3	30 l/s
4	35 l/s
5 („turbo“)	max 50 l/s



- Press the Enter button T3 to save the new suction level
- If the suction level is changed without pressing the Enter button T3, the extraction system will run the last saved suction level the next time the unit is started.
- Suction level 5 (“Turbo mode”) is only avail. for short time usage (factory set to 5 min.) and can therefore not be saved in regulation mode.
- While in “Turbo mode” the LED for suction level 5 is flashing. Once the time is elapsed, the suction will fall back to the saved suction level 1-4.
- Further adjustments can be made with the Zubler Suction-Technology APP (Android only).



2.5 Current suction power



Example:

Suction level 3 is selected, but the air flow rate corresponds only to level 2.

If the LEDs of display L1 light up according to the selected suction level during suction operation, this means that the preset air flow rate of the suction level is also actually being provided and the motor has not yet reached its maximum power.

If the desired air flow rate cannot be attained (due to flow resistance or filter clogging), then LED lights that are solid signify the attainable setting, while the flashing LEDs signify the setting and corresponding suction loss. The volumetric flow control device is preset in the factory so that a warning signal sounds and the Filter Maintenance LED L4 lights up only at minimum suction power.

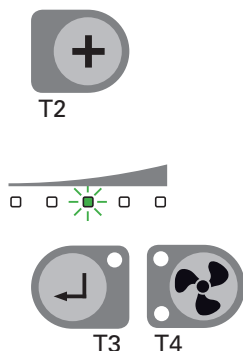
In the advanced settings (see section 3) it is possible to set this so that the filter warning is given as soon as the suction power decreases to the next lower suction level.

- Further adjustments can be made with the Zubler Suction-Technology APP.



2.6 Setting the suction cutoff time

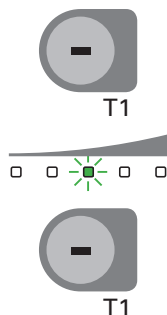
For the extraction of the residual dust in the air, it is possible to extend the time the extraction system should continue to run during breaks or after the end of dust production. The factory setting is 3 seconds.



- press and hold the plus button T2 for at least 3 seconds until only the middle LED of display L1 is lit
- the suction time can be reduced by 1 sec per LED jump to the left with the T1 (-) button or increased by 1 sec per LED jump to the right with the T2 (+) button.
- press the Enter button T3 to save the new value
- press the fan button T4 to abort the procedure without saving
- the suction overrun time can be prolonged by a further 2 sec by repeating the procedure.
- Further adjustments can be made with the Zubler Suction-Technology APP (Android only).

2.7 Fine tuning of the automatic operation (ECO only)

If the automatic sensitivity matching of the dust producer to the extraction system has not yet led to an ideal result after section 1, the switch-on threshold of the extraction can still be manually readjusted.



- press and hold the minus button T1 for at least 3 seconds until only the middle LED of display L1 is lit
- lower the switch-on threshold with the T1 (-) button (extraction starts earlier
- easier; this is a solution if the extraction system switches off or doesn't start-up immediately despite dust being produced)



T2



T3



T4

- the switch-on sensitivity of the T2 (+) button (extraction starts later / less easily; this is a solution if the extraction system occasionally starts up on its own or already runs in standby).
- press the Enter button T3 to save the new value
- press the fan button T4 to abort the procedure without saving
- the switching sensitivity can be set even higher or lower by repeating the procedure.
- see section 3 for advanced settings and troubleshooting.

2.8. Switching the extraction system off

The Z1 extraction system is intended only for switched-on standby operation.

If the extraction system is switched off or disconnected from the power supply, a switch-off time of at least 10 seconds is necessary.

If the extraction system is inadvertently switched back on immediately, or in the case of a short-term power failure of less than 10 seconds, the system can enter the error state. LED L5 lights up. In this case the extraction system must remain switched off for longer than 2 minutes in order to be able to start it again.

Note! The Z1 extraction system cannot be switched on and off by external switching electronics that interrupt the power supply to the extraction system.

3. ■ Maintenance

3.1 Dust removal

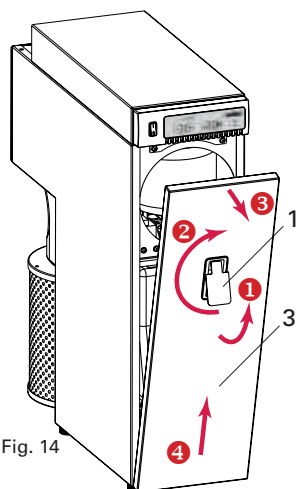


Fig. 14

The dustbin must be checked and reset once the dustbin timer is expired. An expired timer will be displayed by a simultaneous flashing of LED L4 and L5 (Dustbin and Service) and an additional signal tone (See section 3.2)

- Switch OFF the suction unit with main switch 29 (Fig.13)!

Open the front door 3:

- ① Lift the latch of lock 1
- ② Turn the latch about 180°
- ③ Swivel the front door 3 by 10-15°
- ④ Elevate and remove the front door 3

Keep a usual dustbag with 20l (45x50cm) with pull strap at hand.
(See enclosed dustbags 2pcs.)

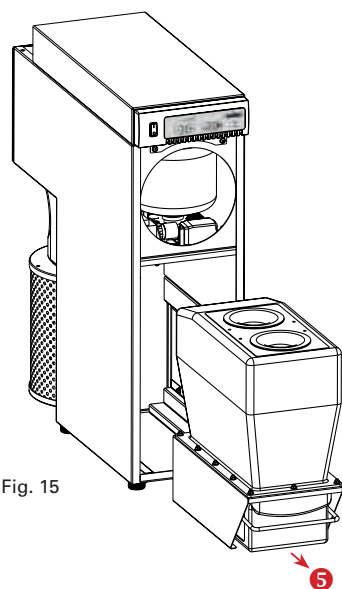


Fig. 15

- ⑤ Pull out the complete filter unit (Fig.15)
- Place the filter unit preferably in a dirt area, e.g. Plaster Dept., close to the edge of a table (Fig.16)
 - Before opening the dustbin, dust accumulations should be detached by tapping the sides of the plastic housing.

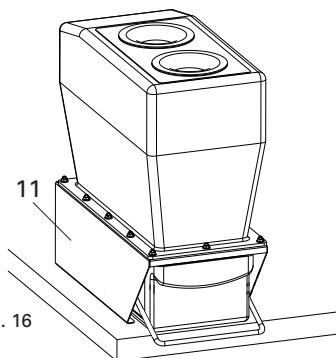


Fig. 16

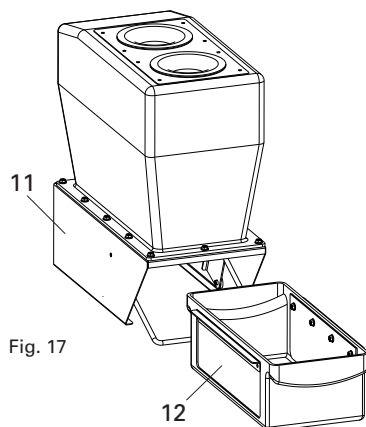


Fig. 17

1	latch of lock
3	front door
11	filter unit
12	dustbin

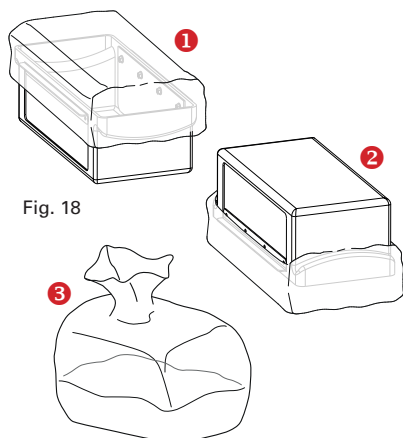


Fig. 18

- After the dust had some time to settle, pull down the lever and slide out the dustbin carefully (Fig.17)

- 1 For a dust-free disposal use the enclosed dustbag and tighten the strap below the slides and handle bars (Fig.18)

- 2 Now slowly turn over the dustbin and pour the dust into the dustbag. Therefore hold the dustbin with the dustbag. (Fig.18)

- Tap the dustbin and wait until the dust has settled inside the dustbag.

- 3 Release the strap and remove the dustbin from the dustbag. Close the dustbag immediately. (Fig.18)

- Clean the outside and the sealing edge of the dustbin with a moist cloth.

- Slide the dustbin carefully back into the filter unit and lift up the lever.

- If there are any visual dust accumulations on the filter unit, clean it with a moist cloth before sliding the filter unit back into the suction unit.

- Dispose the dustbag with the dust according to your local regulations.

- By pressing button T4 for at least 3s the timer for the dustbin must be reset.

3.2 Adjusting the dustbin timer

- The dustbin timer can be adjusted according to your needs. This is especially important if the amount of dust is higher than the dustbins volume with the factory set time (ECO=50h, CAM=25h) and therefore a dust-free disposal is not possible.
- If the timer is too short, we only suggest an alteration if the dust volume is less than 30% of the dustbin.
- Change the dustbin timer corresponding to the manual of the Zubler-Technology APP



3.3 Filter unit replacement service

- The filter cartridges must be replaced, if the vacuum performance can not be improved by the filter cleaning any more.
- If the minimum vacuum power is reached for 3 times within a period of time, the system will display a faulty filter with LED L4.
- We recommend to change the filter cartridges every 2-3 years, even if no filter failure is displayed, to ensure an economic and safe usage.

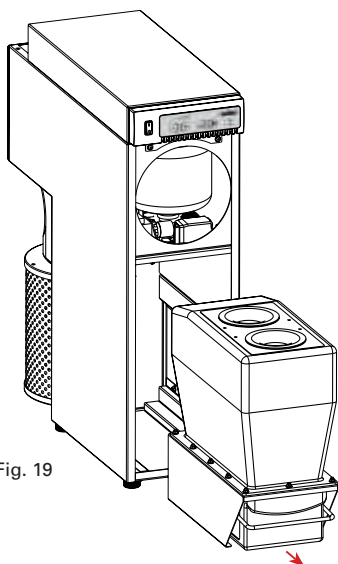


Fig. 19

- We, Zubler, offer a comfortable exchange of the filter unit. You will receive a cleaned and checked filter unit with new filters. (O.No. 896/1106)
- Once you have received the replacement part, you just will have to return the used filter unit to Zubler or our service partner with the packaging which the replacement part came with.
- Alternatively the exchange can be performed by a local service partner.
- Pull out the filter unit as shown in section 3.1 Fig.15 and replace it with the replacement part.

3.4 Replacing the filter cartridges

The replacement of the filter cartridges must be performed by instructed professionals with appropriate safety equipment only! (filter mask, protective gloves and suit, safety glasses etc.)

The prevention of occupational health and safety, as well as maintaining the functionality of the suction unit, requires to make use of the replacement service. An incorrect assembly or inspection may cause serious damage on health and suction unit.

While the suction unit or motor are still under warranty, the warranty is void if the filter cartridge replacement was performed unauthorized.

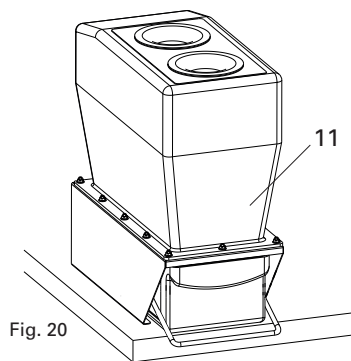


Fig. 20

- Remove the filter unit 11 and the dustbin 12 according to section 3.1.
- Turn over the filter unit with the opening facing upwards. (Fig.21)
- Remove the lever by pushing the brackets to the inside.
- Use a ruggedized glove or cloth to unscrew the filter cartridges CCW.
- Before installing the new cartridges clean out the filter housing and check the function and rubber seal of the flap valve and rebound plate.
- The seating around the threaded nozzles for the seal of the filter cartridges must be free of dust.

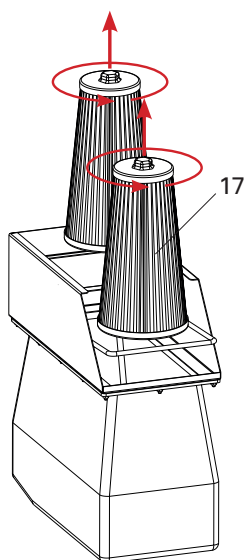


Fig. 21

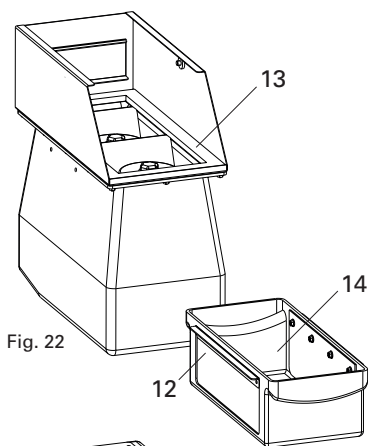


Fig. 22

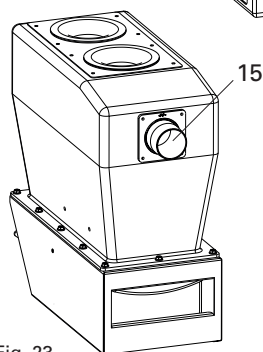


Fig. 23

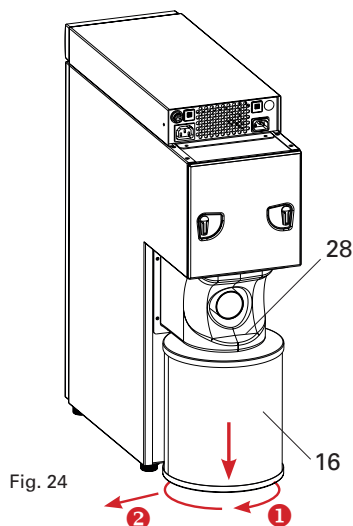
- | | |
|----|------------------|
| 11 | Filter unit |
| 12 | Dustbin |
| 13 | Sealing |
| 14 | Sealing edge |
| 15 | Intake nozzle |
| 17 | Filter cartridge |

Upon visible wear, loose parts or dust accumulation on the outside, which is an indication for a leakiness, a complete replacement of the filter unit is necessary! (See section 3.3)

- Screw in the new filter cartridges and tighten firmly by hand force. Let the sealing settle and retighten some minutes later.
- Clean the sealing 13 with a moist cloth and check the glued edges for cracks.
- Clean the outside and the sealing edge 14 with a moist cloth and check for damages, e.g. dents.
- Check if all parts are seated tight and no damages are visible.
- The intake nozzle 15 must not show signs of wear mostly caused by metal chips or blasting sand.

- Install the lever again
- Turn over the filter unit into upright position.
- Slide in the dustbin until stop and push the lever upwards.
- The filter unit can now be slided back into the suction unit.

3.3 Exhaust filter (Diffusor)



Alternatives:

- Diffusor M (D-type)
- Hepa filter H14 (H-type)
- Activated carbon filter (C-type)
- Switch the system off at the main switch 29 (fig. 9) and also switch your working appliance off at the associated main switch to prevent inadvertent start-up.

- 1 twist the exhaust filter off the exhaust connection in the direction shown.
- 2 after that you can remove the filter cartridge to the side or to the rear.

A H-filter or an activated carbon filter can be connected instead of the diffusor (exhaust distributor). In addition, it is possible using an exhaust connector (special accessory) to feed the air via a pipeline into the open air.

Activated carbon filters must be replaced regularly!
The lifetime depends on the type, quantity and concentration of the extracted media.

3.4 Motor

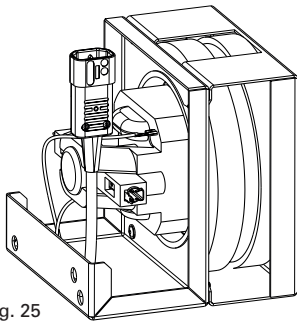


Fig. 25

Due to our innovative motor control, the wear of the motor and the carbon brushes is reduced significantly. Resulting in a maintenance-free runtime of 1500h (ECO) and 1000h (CAM).

Moreover the carbon brushes can be changed more often, enabling a total motor lifetime of several thousands of working hours.

The lifetime depends strongly upon the operating mode (Suction level, Filter filling grade).

Please take care, that in case of a motor change, the diffuser must also be replaced.

(See chapter 3.3)

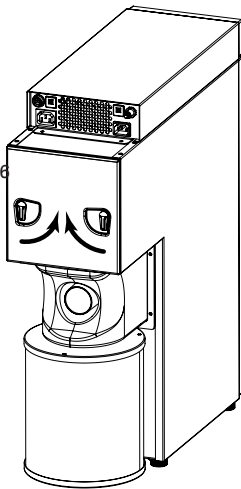


Fig. 26

3.6.1 Motor replacement:

- Remove the suction hose and all plug connections and pull the extraction system out.
- ① first of all, turn the two levers upwards (fig. 17).

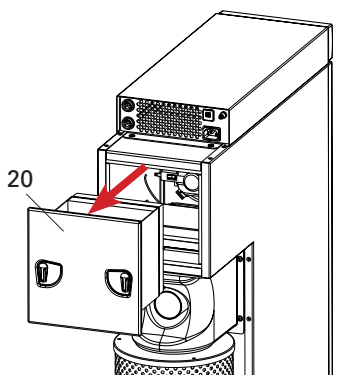


Fig. 27

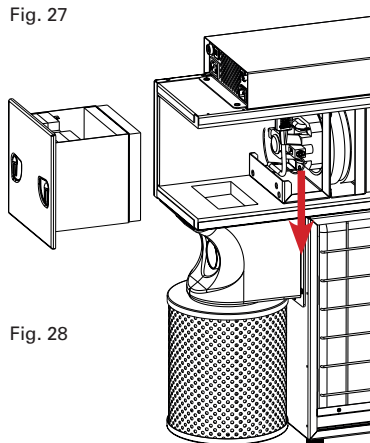


Fig. 28

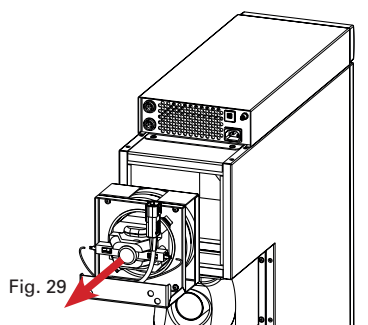


Fig. 29

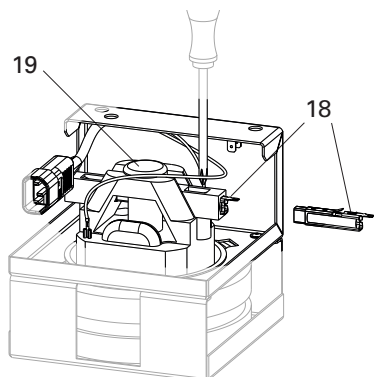
- 2 after that you can pull the sealing plate with silencer out to the rear (fig. 18), at the same time pulling the protective ground contact off the silencer housing on the left.

Caution!

Ensure that the unit is disconnected from the mains power supply!

After unplugging the mains power supply, wait at least 2 min. before proceeding with the replacement of the motor.

- 3 now you can disconnect the motor plug on the right-hand side in the appliance (fig. 18b).
- 4 the motor can then be pulled out to the rear (fig. 19).



3.4.2 Carbon brush replacement

- The motor package has to be removed in order to replace the carbon brushes! Using a blunt object, press the metal tongue downwards (fig. 30) and pull the carbon brush holder out. Now push in the carbon brush (see 4.5 Spare parts) until it engages and mount everything in the reverse order.

Fig. 30



18	Carbon brushes
19	Motor package
20	Silencer


Always replace both carbon brushes!

The remaining length of the brushes may only be up to 50% after expiry of the time. Further use is not worthwhile and can lead to destruction of the motor collector.



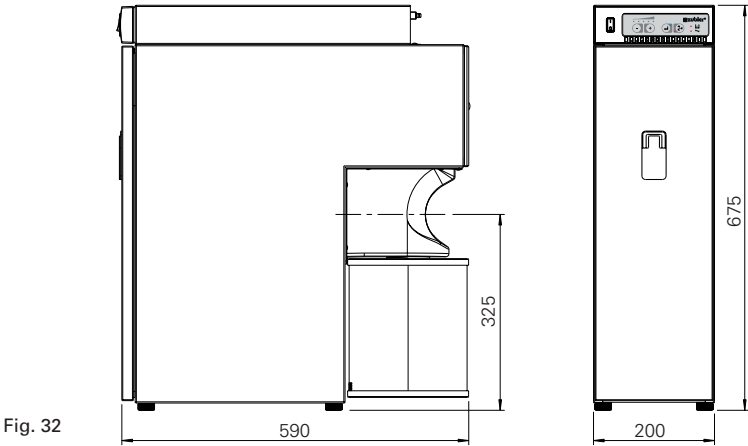
4. ■■■ Error Codes

Error indication	Cause	Remedy
LED L4 (Filter condition) 	<ul style="list-style-type: none"> - Filterbag filled - Fine filter or diffuser clogged - Intake system, suction hose or exhaust clogged - Resistance of intake system too high 	<ul style="list-style-type: none"> - Replace filterbag, fine filter, diffuser - Check intake system, suction hose and exhaust for obstacles - Use intake system with less resistance, more cross section
flashing	The selected suction level can not be reached. (Information only)	<ul style="list-style-type: none"> - Accept undercut - Replace filterbag - Shorten the cleaning cycles (PRO only)
fast flashing	The factory set min. suction power can not be reached	<ul style="list-style-type: none"> - Replace filterbag, fine filter, diffuser - Shorten the cleaning cycles (PRO only)
permanent	The factory set min. suction power can not be reached.	
LED L5 (Service) 	Malfunction of the motor or motor control	
fast flashing	Timer carbon brushes expired	<ul style="list-style-type: none"> - Replace carbon brushes - If no brushes are at hand, reset by pressing ON/OFF button T4 for 3 sec. <p>CAUTION!</p> <ul style="list-style-type: none"> - If not changing the brushes, the motor will get damaged soon
permanent	Malfunction of the motor or motor control	<ul style="list-style-type: none"> - Switch OFF the suction unit with the main switch 29 and wait for 2 min. before restarting - Change motor - Contact service

Fehlererkennung	Ursache	Abhilfe
LEDs L4 and L5 (Service filter) 		
flashing asynchronous (Cleaning mode only, suction not running)	Filter cleaning will be performed with the next break.	Take a short break, if possible.
flashing synchronous	Filter cleaning is in process	Wait until the filter cleaning is finished (approx. 45s)
permanent	The suction power could not be improved by several cleaning cycles.	The filter unit or filter cartridges must be replaced. (See section 3.3)

Fehlererkennung	Ursache	Abhilfe
The filter unit or filter cartridges must be replaced. (See section 3.3)	Timer for checking the dustbin is expired.	Empty the dustbin and reset by pressing T4 for 3s. (See section 3.1 and 3.2)
During the filter cleaning cycle there is only a clicking sound of the valves but no air shot. Filter cleaning is not working/without effect.	No compressed air or not enough pressure.	Check the pressure on the pressure gauge of the pressure reducer. (See section 1.2.4)
with the next break.	<ul style="list-style-type: none"> - Suction unit is switched OFF or not ready - Fuse(s) 7 is (are) OFF 	<ul style="list-style-type: none"> - Check if the suction unit is switched ON with main switch 29 - Check if there is a malfunction e.g. LEDs "Filter" or "Service" is lighted - Check if fuses 7 are ON - Ensure the working tool does not draw more than 600W (120V) or 1300W (240V)
	<ul style="list-style-type: none"> - Local power socket has no power - Main fuse 7 (10A) is OFF 	<ul style="list-style-type: none"> - Check power supply and power cord - Check if fuse 7 (10A) is ON
Take a short break, if possible.	<p>The selected suction level can not be reached, but just the level of the LED which is not flashing due to:</p> <ul style="list-style-type: none"> - Filterbag filled - Intake system, suction hose or exhaust is clogged - Resistance of intake system too high 	<ul style="list-style-type: none"> - Replace filterbag, fine filter, diffuser - Check intake system, suction hose and exhaust for obstacles - Use intake system with less resistance, more cross section

5. Technical Data



Dimensions:

Width:	200mm	7.9"
Height:	675mm	26.6"
Depth:	590mm	23.2"
Weight:	33kg	72.8lbs
Voltage:	AC $\pm 5\%$, 50-60Hz	230V
Power consumption suction:	700W	700W
max. power outlet (ECO):	1300W	600W
max. total power (ECO):	2000W	1300W
Main fuse:	T10A	T15A
Fuse outlet. ECO:	T6A	T6A
Dustbin volume:	ca. 3Liters	ca. 3,2qt
Main filter surface area:	2x 0,4m ²	2x 4,3ft ²
Suction flow (CFM):	15-50l/s	32-106cfm
max. Vakuum:	190mbar	2.8psi
Noise level:	45-60dB(A)	

6. Warranty

In case of an appropriate usage, according to the operating manual, we, Zubler GmbH, are granting a warranty of 12 months upon all parts of the suction unit, except wear parts.

Wear parts are carbon brushes and dust filtering elements as filterbags, filter cartridges.

Zubler grants a 3-year warranty for the motor or a running time of 1500 hours. By replacing the carbon brushes in the event of a warning message after the time interval, a significantly longer motor running time can be achieved. Operating the motor with replacement brushes is an option with no warranty.

We, Zubler GmbH are standing for professional and qualified repairs with original spare parts. Therefore we are granting a warranty of 6 months upon every repair performed by us or a certified retailer unless all necessary repairs were performed to enable an unrestricted function.

A warranty can not be claimed in case of:

- Inappropriate usage
- Usage beyond operating conditions
- Violation of operating- or connecting instructions
- Missing regular cleaning, servicing and efficiency testing
- Repairs performed by non-certified personnel
- Usage of non-original spare parts

7. Disposal instructions

7.1 Disposal of consumables

Full dust containers, filters or filter bags are to be disposed of in accordance with the regulations of the specific country or region that governs those laws where the unit is in service. Personal protective equipment is to be worn depending on the degree of contamination of the filter.

7.2 Disposal of the appliance

The appliance must be disposed of by a company that specializes in removal of equipment. The removal company must be informed about any residues in the appliance that could be harmful to health.

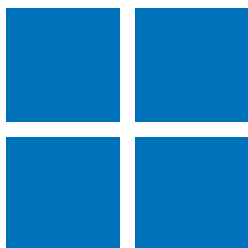
7.2.1 Disposal instructions for EU member states



In order to maintain and protect the environment, prevent environmental pollution and improve the reuse of raw materials (recycling), the European Commission has passed a directive according to which electrical and electronic appliances are taken back by the manufacturer in order to dispose of them properly or recycle them. Appliances marked with this symbol may therefore not be disposed of in the unsorted domestic waste within the European Union. Please enquire to your local authorities regarding proper disposal.

7.2.2 Special information for customers in Germany

Zubler electrical appliances are appliances for commercial use. These appliances may not be taken to municipal collection points for electrical appliances; instead, they are taken back directly by Zubler. You can find out more about current return options online at: www.zubler.de



Zubler Gerätebau GmbH
Buchbrunnenweg 26
89081 Ulm-Jungingen
Germany