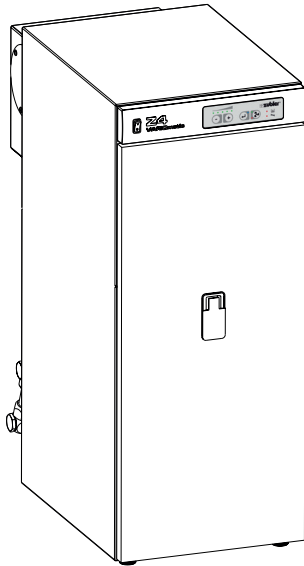


# Z4 VARIOmatic

Multi suction system



EN 10-2021

 **zubler**<sup>®</sup>  
dental & technik

[www.zubler.de](http://www.zubler.de)



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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](http://www.zubler.de)

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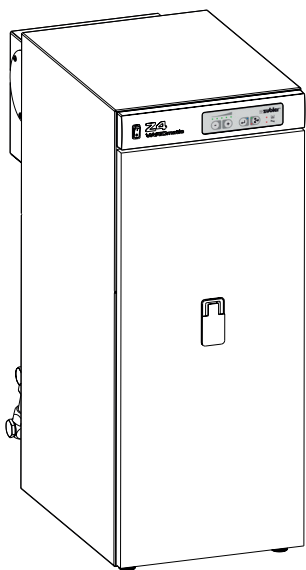
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# 0. Introduction

Dear customer,  
we are pleased, that you have decided for a Zubler suction 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 suction unit

### **Z4 VARIOmatic**

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,

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



Kurt Zubler  
CEO

## 0.2 Intended purpose of use

This suction system is designed exclusively for dry dusts!

The Z4 VARIOmatic is a central suction system for the simultaneous operation of a maximum of 4 workstations and can be used for up to 10 alternatively used stations.

The suction system consists of the central suction unit Z4 and port openers AP601 connected to the suction system via network cable.

The suction system allows working with 5 vacuum levels as long as only one workstation is opened.

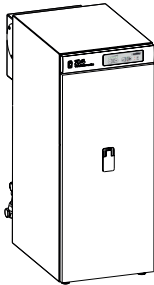
With simultaneous operation of 4 workstation, all stations have regardless of their setting, the same suction power which corresponds to suction level 2 (factory setting).

## 0.3 Operating Environment

Temperature:	+5°C bis +40°C
Max. permissible relative humidity:	max. 80% (bei 30°C)
Voltage supply	230V AC +/-5% 50-60Hz
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 **Z4 VARIOmatic**  
suction unit



1x Power cord



Suction hose Ø75mm length 800mm



Exhaust hose Ø75mm length 800mm



Compressed air hose Ø8mm  
with quick connector



1x Closure cap for suction port (mounted)



2x Closure plug 75mm

Note: Automatic port openers AP601 will be included according to the number of workstations ordered which will come with their own instructions and accessories.

## 1.2. Setting up the suction unit

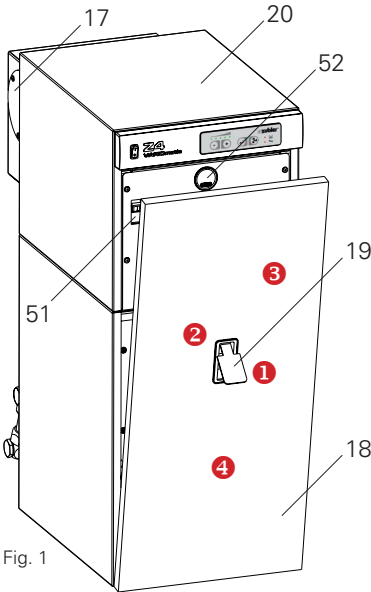


Fig. 1

### Door removal

Transporting and positioning the suction unit is much easier with the door (18) removed. The door can be removed as shown in Fig.1:

- 1 lift the latch of closure (19)
- 2 rotate the latch by 90°.
- 3 swivel the door (18) approx. 10° to the front.
- 4 now you can remove the door (18) completely by lifting it slightly.

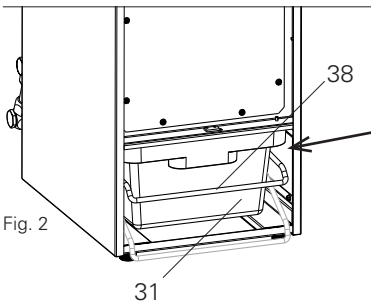


Fig. 2

### Type plate, serial number

#### ZUBLER Gerätebau GmbH

Buchbrunnenweg 26  
D-89081 Ulm  
Tel. +49(0)731 1452-0 / www.zubler.de

Absauganlage  
Z4  
Spannung 230V  
Gesamtleistung max. 1800W



Z4 VARIOmatic 00-11111-22



Made in Germany

17	Exhaust cover
18	Door
19	Closure
31	Dust container
38	Clamping lever
51	Automatic circuit breaker
52	Pressure gauge Compressed air

- For queries, service, spare parts and accessories, you will find the serial number on the inside of the suction unit, at the front next to the dust container (31).

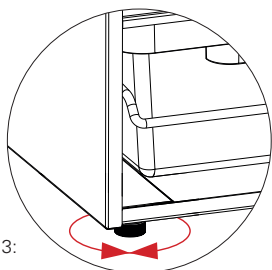


Fig. 3:

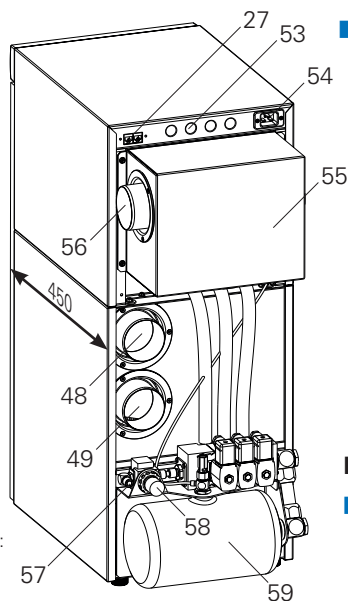


Fig. 4:

27	Connectors AP601
48	Suction port, top
49	Suction port, bottom
53	Exhaust air Motor cooling
54	Mains connector
55	Motor silencer
56	Exhaust port
57	Compressed air connector 8mm
58	Pressure reducer
59	Compressed air tank

## Set up

- Pull down the Clamping lever (38) to lower the dirt container (31), check if the container is empty and there are no accessories in it.
- Place the suction unit on a level surface. If necessary, an alignment is possible by adjusting the height of the threaded feet up to max. 8mm. see Fig. 3
- The housing of the suction unit must not touch furniture parts, to avoid a transmission of vibrations and noise amplification.

## Backside accessibility

- Ensure that the connections are easily accessible from the backside or from the sides, especially the right-side of the suction unit. Partition walls of furniture units must be recessed from a depth of 450 mm to the rear, see Fig. 4.
- Ensure that it is possible to pull out the appliance to the front. This is necessary for servicing the motor and the compressed air system.
- The suction and exhaust air lines can be connected or disconnected much easier with the enclosed Ø75mm hose adapters. A direct connection with pipe is not recommended and is only possible if the suction unit is completely accessible.



## 1.3. Connecting the suction unit

### 1.3.1 Suction

- The suction hose (socket/socket 45° Fig. 6 is connected with the angled side to the suction port of the suction unit. Furthermore it ensures a correct pipe installation (pipe pointing to suction) Article number: 752/3480

#### one-sided

- If all workstations are on one side of the suction system, one of the suction ports can be closed with a closure cap. (preinstalled on bottom port 49)
- If the suction hose must be routed away within the construction depth of the suction system, the connection must be made according to the arrangement in Fig. 5. If necessary, swap the closure cap to the other port.

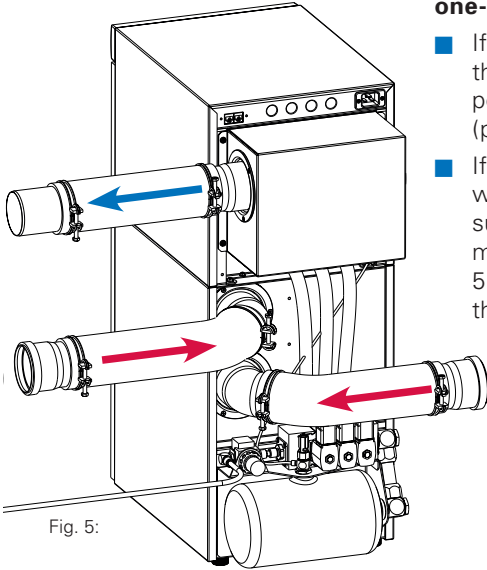


Fig. 5:

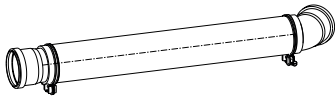


Fig. 6

#### two-sided

- If there are workstations on both sides of the suction system, both suction ports (48/49) must be used. Within the construction depth of the extraction system, a suction hose leading to the left can only be connected to the bottom suction port.
- An additional suction hose, Fig. 6, item number 752/3480 is required.

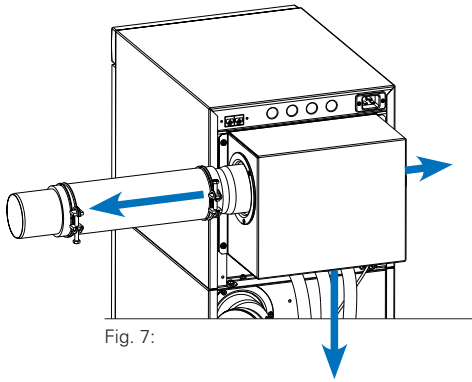


Fig. 7:

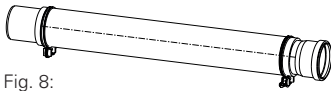


Fig. 8:

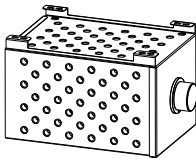


Fig. 9:

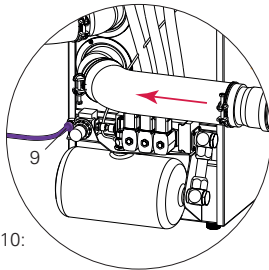


Fig. 10:

### 1.3.2 Exhaust

- The exhaust can be moved to the left or bottom of the motor silencer (55) by swapping the exhaust cover (17) and the exhaust port (56). Fig. 1.
- The usage of the bottom exhaust port should be avoided if possible, otherwise it may not leave enough space for suction and compressed air lines.
- The exhaust hose (socket/pipe) Fig. 8 is used to route the exhaust air from the suction system to the installed piping. The exhaust hose can additionally be used as an extension or flexible intermediate piece in the suction or exhaust air line. Item number: 752/3481
- We recommend to guide the exhaust air to the outside. If the length of the duct exceeds 10m,  $\varnothing$  110mm pipe should be installed.
- For an exhaust into the room, we offer a diffuser (Fig.9), which reduces the air velocity and outflow noise. This can be installed in a suitable position and can also be connected via a  $\varnothing$ 75mm pipe. Dimensions: 450x300x300 mm

### 1.3.3 Compressed air

- Plug the enclosed 8mm compressed air hose firmly into the swivelling connector on the pressure reducer, Fig.10, take care to overcome the pressure point of the sealing.
- Now the quick connector (7mm) can be plugged into a suitable quick coupling in the laboratory.

## 1.4 Connecting the AP601 port openers

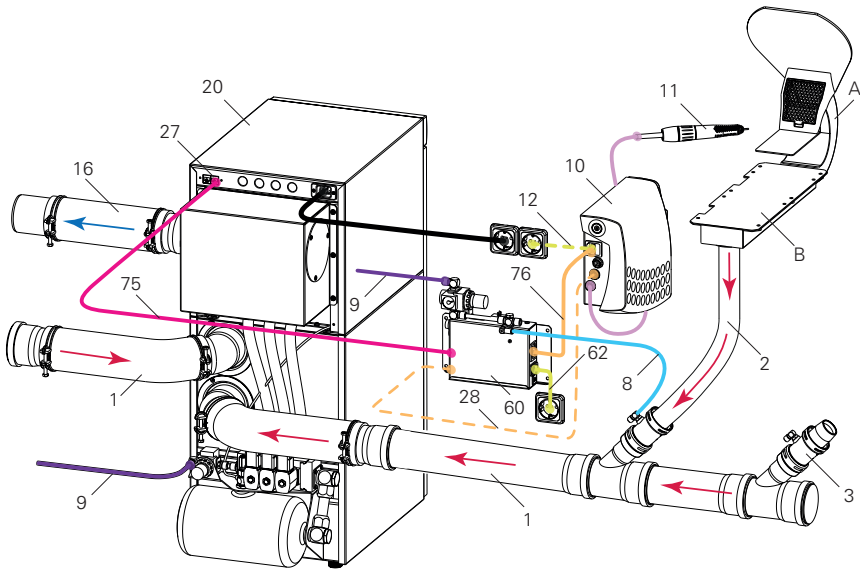


Fig. 11: Schematic layout of a workstation with multistation suction system Z4 VARIOmatic

1	Pipe system	20	Z4 VARIOmatic Multi-station suction unit
2	Suction hose workstation	27	Connectors AP601
3	Port valve	28	Start signal K50
8	Comp. air line port valve	60	Autom. port opener AP601
9	Comp. air supply	62	Mains cable AP601
10	Handpiece control unit e.g. Zubler K50	75	Network cable
11	Handpiece	76	Power cord K50
12	Power cord handpiece control unit (with 28 only!)		
16	Exhaust hose Ø75mm	A	Suction funnel R2200
		B	Rectangular pipe R2000

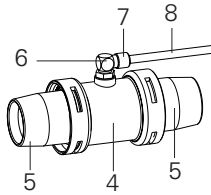


Fig. 12

4	Valve body
5	Suction ports Ø40mm
6	Compr. air connector
7	Push ring
8	Compr. air hose Ø6mm

#### 1.4.1 Install the port valve

- Plug the port valve (3) directly into the 40mm branch pipe.
- Connect the port valve and the workstation with 40mm hose. The Length should not exceed 1.5m.

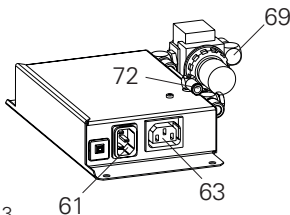


Fig. 13

#### 1.4.2 Install the control unit

- Install the control unit with at least 2 screws at the workbench close to the workstation.
- Connect the compr. air connector (6) of the port valve with the compr. air connector (72) of the AP601 control unit, using the enclosed Ø6mm compr. air hose.
- Connect the compr. air supply (69) of the AP601 control unit (pressure reducer) with your local compr. air supply, using the enclosed Ø8mm compr. air hose.
- Plug the handpiece or other tool into the IEC C13 socket (63), using the enclosed C13/C14 power cord adapter.
- If your working equipment is not equipped with a C13 socket, you may need a suitable power adapter which is not included.
- Plug the enclosed power cord into the IEC C14 power socket (61) of the AP601 control unit and plug it into a local power socket.

### 1.4.3 Connecting the control units

- The AP601 port openers must be connected to the suction unit via a data bus (Fig.14).
- Therefore use the 3m network cable, which comes with the AP601.
- The AP601 is equipped with two RJ45 network sockets, which are used for interconnection (daisy chaining).
- The suction unit is also equipped with two RJ45 network sockets, which only have to be used both, if there are workstations on both sides of the suction unit. It is recommended to route the network cable parallel to the suction line.

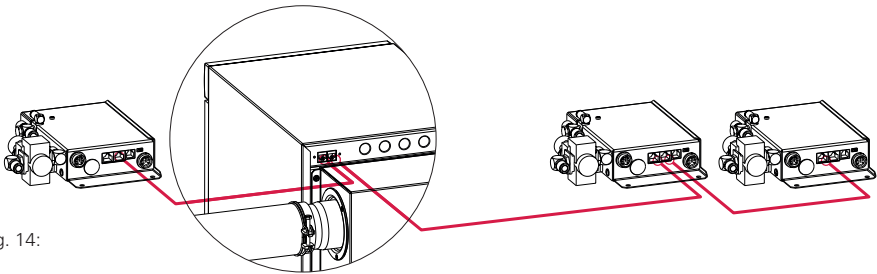


Fig. 14:

- If the distance between two neighbouring AP601 or between an AP601 and the suction unit is greater than 3m, longer network cables are required, which are also available from the Zubler accessory list.

Length Article number

5m 822/0661

10m 822/0662

- For further information, please refer to the schematic illustration on page 11 or the detailed instructions for the AP601 port opener.

## 1.5 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 R2200,
- Rectangular pipe R2000

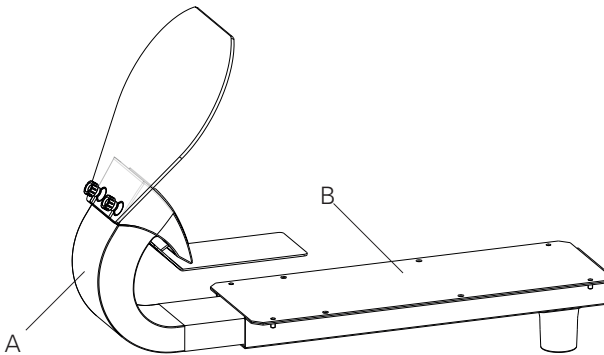


Fig. 15

- |   |                        |
|---|------------------------|
| A | Suction funnel R2200   |
| B | Rectangular pipe R2000 |

- Sitting in the upright position in a posture preserving ergonomically designed chair.
- Workpiece as close as possible to the suction funnel R2200; 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.



Attention!

The protective glass shield is essential for the dust collection and must be mounted.

# 2. ■ Functions

## 2.1 Control unit

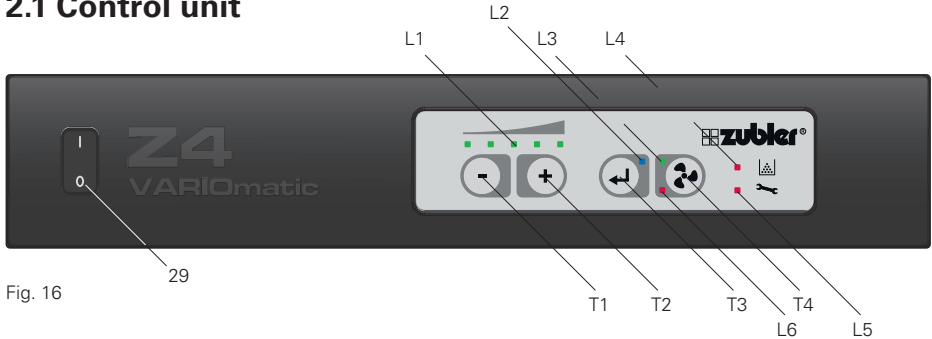


Fig. 16

## 2.2 Commissioning

L1	LED Vacuum level
L2	LED Bluetooth
L3	LED "ON"
L4	LED Dust container/Filter
L5	LED Service
L6	LED Central vacuum mode
T1	minus(-)
T2	plus(+)
T3	Enter
T4	ON / OFF
29	Main switch

- Switch on the main switch (29).
- At first, the suction unit opens all connected port openers AP601 one after the other for a few seconds to clean the hoses and pipes from dust deposits with maximum suction power.
- After the hoses have been cleaned, the filters are cleaned with 6 successive blasts of compressed air. Please pay attention to this function and check that the pressure gauge (52) reaches 5 bar again after each compressed air blast Fig.17 (Fig.1, page 7).
- The suction system is ready when the red LEDs L4 and L5 stop flashing.
- Settings of the individual suction points can be made in accordance with the operating instructions for the AP601.
  - Adjustment of the sensitivity for automatic operation.
  - Automatic pipe cleaning for each main pipe run
  - Set the suction level, sequence and names for the workstations.

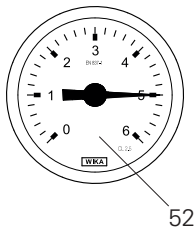
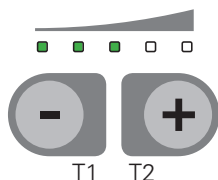


Fig. 17

## 2.3 Basic functions



### 2.3.1 Vacuum levels

- As long as the power limit of the suction motor is not reached (depending on the number of simultaneously opened workstations), the following volume flows can be achieved approximately with the 5 factory set vacuum levels:

Level	suction power
1	20 l/s
2	25 l/s
3	30 l/s
4	35 l/s
5	max 50 l/s

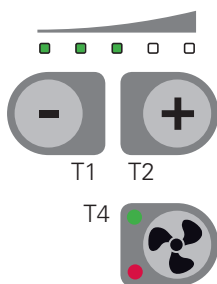
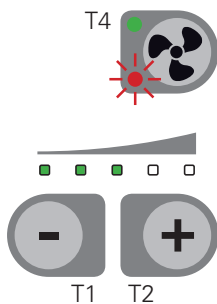
- Vacuum level 5 is the maximum motor power (no volume control).
- The specified air volumes are determined by the attached vacuum and refer to the port valve diameter of the AP601 automatic port opener.



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- The suction power of the vacuum levels 1-4 can be changed via the Zubler suction technology APP.





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### 2.3.2 Starting the suction manually (for test purposes only!)

- The suction can only be started manually by pressing T4 (🌀) on the suction unit, if there are no AP601 port openers connected to the suction unit! LED L6 starts flashing once the mode is activated.
- The vacuum levels can be adjusted with the T1 (-) and T2 (+) keys.
- Once there are AP601 port openers connected, button T4 (🌀) on the suction unit is blocked. Starting the suction is only possible via the AP601 port openers.

### 2.3.3 Multi-user vacuum level

- The multi-user vacuum level is factory set to level 2. If more than one workstation is opened, vacuum level 2 is applied.
- The multi-user vacuum level can be adjusted with the T1 (-) and T2 (+) keys and can be saved by pressing T3 (Enter).

### 2.3.4 Central vacuum level mode

- Usually the vacuum level is defined by the AP601 port openers. However, under some circumstances a central vacuum level mode may be required. With this mode all workstations use the same vacuum level regardless of the vacuum levels of the AP601 port openers.
- The central vacuum level can be adjusted with the T1 (-) and T2 (+) keys and can be saved by pressing T4 (🌀). LED L6 is lighted. Press T4 (🌀) again to disable the mode again.
- The status of the central vacuum level mode is saved even after a restart of the suction unit.

Further system settings are possible with the Zubler suction technology APP.

# 3. ■ Maintenance

## 3.1 Dust removal

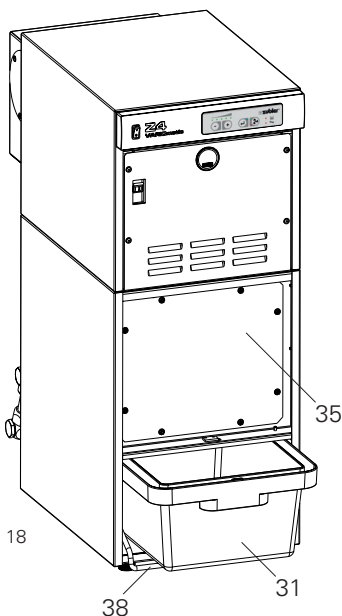


Fig. 18

31	Dust container
35	Filter cover
38	Clamping lever

### 3.1.1 Checking the fill level

- Once the timer for the dust container has expired, the LEDs L4 (dust container) and L5 (service) start flashing. Next time the suction unit is switched ON, the unit stops working and the dust container (31) must be checked as follows:
- Leave the suction unit switched ON
- Remove the door (18) as described in section 1.2 and lower the clamping lever (38). The LED L5 (dust container) stops flashing and is permanently lit.
- Pull out the dust container and empty it if necessary, according to section 3.1.3.
- Slide the dust container back into the suction unit until limit stop and pull the clamping lever upwards.
- The LEDs L4 and L5 are blanked and the timer is reset.

### 3.1.2 Adjusting the container timer

- The dust container timer is factory set to 40h motor running time. Initially you may have to check the filling of the dust container daily or weekly to evaluate the expected amount of dust.
- If the dust container is already filled more than half after one week, the interval should be shortened.
- If the container timer is too short, we recommend adjusting it only, if the dust container is less than 1/3 full of dust once the timer has expired.
- Change the container timer according to the instructions for the Zubler suction technology APP.



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### 3.1.3 Disposal of dust

For the following work, gloves and a mouth guard should be used to safely protect the skin and respiratory tract.

#### ATTENTION!

Sealing edge!  
Must not be  
damaged.

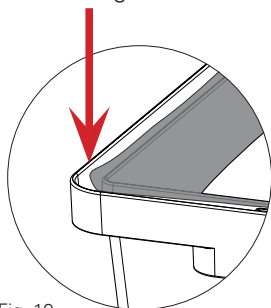


Fig. 19

- Keep 2 commercially available drawstring waste bags 60l with a width of 63-64cm ready.
- Pull the dust container slowly out towards the front.
- Pull off the waste bag from the inner rim of the sealing channel and close the drawstring before slowly lifting the filled bag upwards out of the container. (Fig.20) For safe transport out of the laboratory, another bag should be pulled over the dust-filled bag.
- Clean the container and pay particular attention to the cleanliness and integrity of the two circumferential sealing rims of the channel Fig.19 .
- Unfold the new bag, pull it with the drawstring over the inner rim of the sealing channel and push the bag into the container avoid overlapping over the outer container edge.
- Carefully slide the container back into the suction unit and pull it up against the sealing with the clamping lever.

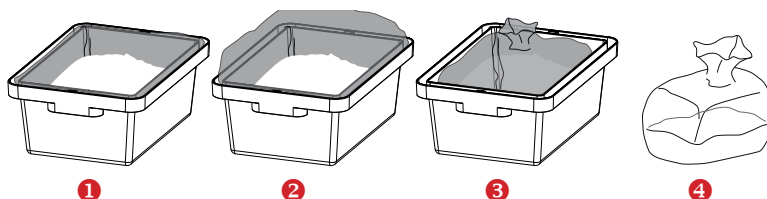


Fig. 20

## 3.2 Filter cartridges

- The Z4 VARIOmatic is equipped with 3 filter cartridges (24) that must be replaced together when their efficiency is no longer given.
- If no increase of suction power is reached after 3 successive cleaning cycles, the filter cartridges must be replaced.
- The LEDs L4 (dust container) and L5 (service) are lit permanently.
- If this condition is already reached after less than a year, the lifetime may be extended by shortening the cleaning interval.
- Switch off the unit at the mains switch (29).
- Remove the door (18) and put it aside.
- Loosen the 8 pcs. M4 nuts on the filter cover (35) with a 7mm socket wrench and pull off the filter cover (35) from the threaded bolts.

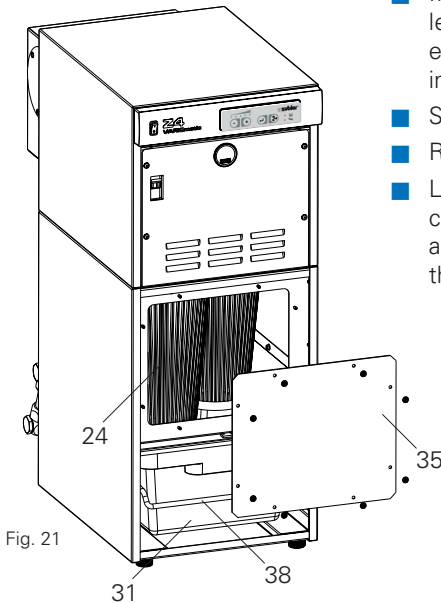


Fig. 21

24	Filter cartridge
31	Dust container
35	Filter cover
38	Clamping lever



Respiratory protection and gloves must be used for further steps! For the soiled dirty filters, have a suitable waste bag ready.

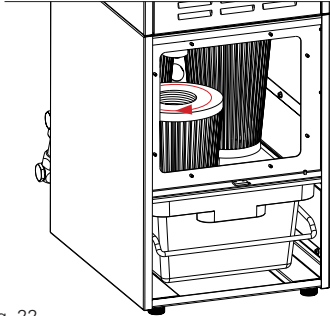


Fig. 22

- Starting with the front filter cartridge, unscrew it clockwise (CW) and lower it into the dust container as shown in Fig. 22 and remove it to the front, see Fig. 23.
- Proceed in the same way until all 3 filter cartridges are removed.
- When reinstalling the new filter cartridges, start with the rear cartridge and grab it firmly with both hands to distribute the force required to tighten it.
- Make sure that the sealing of the filter cartridge is tight against the top of the housing.
- Before reassembling the filter cover (35), make sure that the surrounding seal is in good condition.
- Please clean the cover previously.

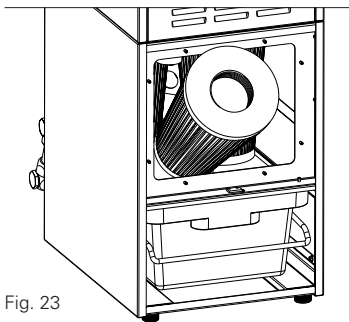


Fig. 23






Store contaminated filters immediately after removal in a dust-proof sealable container (plastic bag) and dispose it in accordance with your local regulations.

### 3.3 Spare Parts

	Best.-Nr.
Filter set (3pcs.)	556/044
Dust container	563/07561
Motor	752/3470

## 4. ■ Error Codes

Error indication	Cause	Remedy
<b>LED L4 (Filter condition)</b> 	Poor filter condition Not enough suction	Check suction and exhaust air lines. Contact service
fast flashing	the set minimum air volume is no longer reached, or the motor does not run	
permanent	the technically minimum required air volume is not reached	
<b>LED L5 (Service)</b> 	Dust container lowered or motor/motor-control malfunction	Check if the container lever is in upper position. Restart the unit with the mains switch
<b>LED L4 and L5 (Filter-Service)</b> 	Dust container timer expired or filter cleaning in process	Check the dust container or wait until the filter cleaning is finished.
Alternate flashing (only in "Cleaning mode"= suction off)	Filter cleaning is required and will be performed during the next break.	If possible, interrupt work temporarily

<b>Error indication</b>	<b>Cause</b>	<b>Remedy</b>
Flashing	Filter cleaning in progress	Wait for filter cleaning (approx. 45s)
Permanent	Repeated attempts to clean the filter have only improved the suction power for a short time or hardly at all.	Replace the filters, see section 3.2
Fast flashing	Timer for dust container check has expired	Check dust container and pull lever upwards, see section 3.1.
No air blast while filter cleaning (Relay click only!) or filter cleaning without effect	No compressed air at the unit or in the lab	Check pressure gauge, check compressed air connection
Suction unit has no power, no LEDs lighted	Laboratory socket has no voltage or automatic circuit breaker (50) has tripped	Check power supply and circuit breaker (50). Contact Service.
Some vacuum level LEDs (L1) are flashing	The selected vacuum level can no longer be reached, but only the vacuum level of the non flashing LEDs..	Filter replacement required or too many workstations opened simultaneously or suction hose not connected, pipe leakage..

# 5. Technical Data

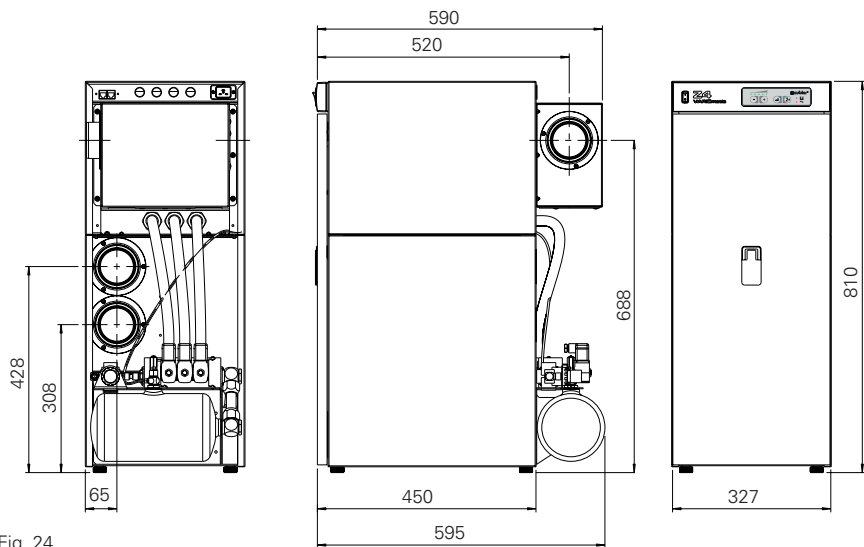


Fig. 24

## Dimensions:

Width:	330mm	13.0"
Height:	810mm	31.9"
Depth:	600mm	23.6"
Weight:	61kg	134.5lbs
Voltage: AC $\pm 5\%$ , 50-60Hz	230V	220V
Power consumption	1800W	1800W
Main fuse:	T16A	T16A
Dust container volume	approx. 12l	approx. 730 in <sup>3</sup>
Main filter surface	2,7m <sup>2</sup>	29ft <sup>2</sup>
Suction volume	100l/s	212cfm
Noise level		45-65dB(A)



# 6. ■ Warranty

In case of an appropriate usage, according to the operating manual, we, Zubler GmbH, are granting a warranty of 1 year upon all parts of the suction unit, except wear parts.

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

Zubler additionally is granting a motor life-time of 3 years or 5000h.

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 un-less 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 must be disposed 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 by a company that is specialized in removal of equipment. The removal company must be informed about any residues in the appliance that could be harmful to health.

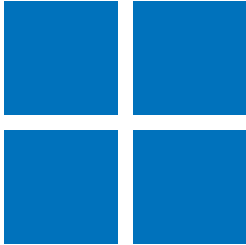
### 7.2.1 Disposal instructions for EU member states

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](http://www.zubler.de)





Zubler Gerätebau GmbH  
Buchbrunnenweg 26  
89081 Ulm-Jungingen  
Germany