



USER GUIDE

**MEDICAL GRADE AIR PURIFIER FOR
MEDICAL
PRACTICES, DENTAL
SURGERIES,
HOSPITAL ROOMS AND
NURSING HOMES**

Introduction

First of all we would like to thank you for choosing one of our appliances. As you can see, you have made the right choice as you have purchased a product that represents the state-of-the-art in air purification technology for professional use.

By following the suggestions and guidelines contained in this manual, the product you have purchased will allow you to enjoy better indoor conditions, healthier air and more hygienically protected rooms with lower investment in energy terms.

This unit complies with the following European directives: CE — LVD — EMC. The product has certificates of conformity from the certification laboratory.

The filtration technology used on the Medical Air pro medical grade air purifier eliminates viruses and bacteria from the air and filters out almost completely fine particulate matter (PM2.5), VOCs and formaldehyde.

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1 -Box Contents

- 1 Medical Air pro
- 1 ESP filter (installed on the machine)
- 1 Photocatalytic plasma filter (installed on the machine)
- 1 Photocatalytic TVOC filter (installed on the machine)
- 1 Germicidal UV-C lamp kit (installed on the machine)
- 1 User Guide

2- Safety information

Make sure to read the instructions before using this product. Keep this guide for future reference after reading it.

This user guide provides all the information necessary for the correct use, maintenance and cleaning of the product.

Please observe the Main safety rules,

Make sure that the power outlet is suitable for the appliance power and supply voltage.

Avoid crushing or damaging the power cord. Do not use the appliance if damaged; contact the customer support service immediately.

Before cleaning, unplug the appliance and wait at least 20 seconds to reduce the risks associated with static electricity.

Do not touch the power plug with wet hands. Unplug the appliance gently, without pulling the power cord, to avoid damaging the cable and the power outlet.

Do not place the product near flammable and/or explosive substances or products to avoid any risk of explosion or fire.

Do not place the product in damp places and/or areas subject to water splashes. Do not use the product outdoors.

Position the machine in a suitable place, paying attention not to obstruct the air intake/outlet

After cleaning the filter, make sure to dry it properly; do not install damp parts on the machine; this may damage the appliance.

In the event of a fault or malfunction, do not attempt to repair the appliance yourself; please contact a specialist technician or any Zymbo Italia SRL authorised service centre.

If the appliance will not be used for a long period of time, unplug it and store it in its box, in a clean and dry place

3- How is Medical Air pro made



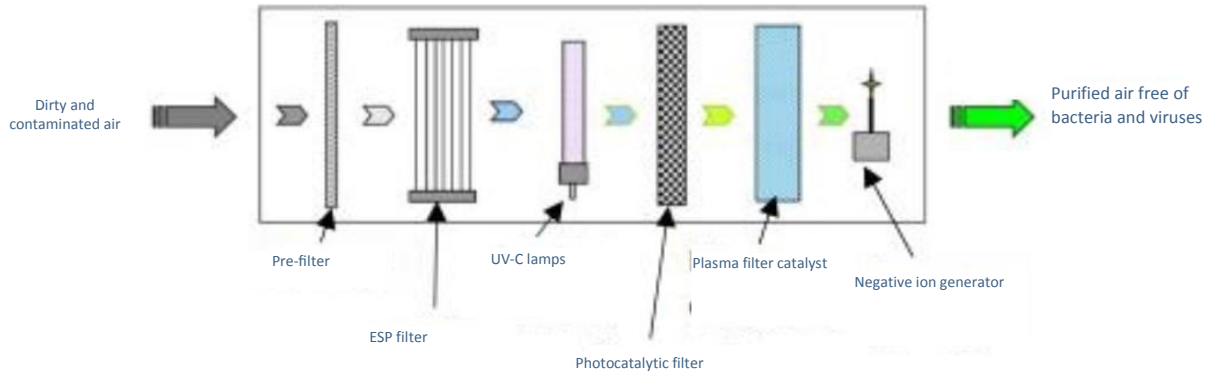


4- Technical data

TECHNICAL DATA Medical Air Pro (Environments from 30 to 50 m2)		
Technical data	UM	
Air purification parameters		
PM2.5 particulate removal	%	> 99,98%
Formaldehyde removal	%	> 94%
Virus - Bacteria - Mould Removal	%	> 99,96%
VOC (volatile organic compounds) removal	%	> 92 %
Pollen Removal	%	> 99.98 %
Power Supply Voltage		
Power Supply Voltage	V / Hz	220-240 / 50Hz
Electric power (MAX)	Watt	80
Current	Amp	0,36
Consumption in Stand-by	Watt	0,5
Recommended room/space	m2	30-50 m2
Pre-filter		SI
Photocatalytic Plasma Filter		SI
Photocatalytic TVOC filter		SI
UV-C Germicidal lamp		SI n° 2
Ioniser		SI
Backlit colour control panel		SI
Timer		SI
Air quality indicator		SI
Temperature and relative humidity indication		SI
Dirty filter signal		SI
Fan speed	number	5
Maximum air flow	m3/h	420
MAX SPL noise	db(A)	< 55
Swivel castors		SI
Product dimensions A x B x H		
Product dimensions A x B x H	mm	350 x 350 x 670 (h)
Net weight	kg	25
CE - LVD - EMC certification		YES
Product performance certification		YES

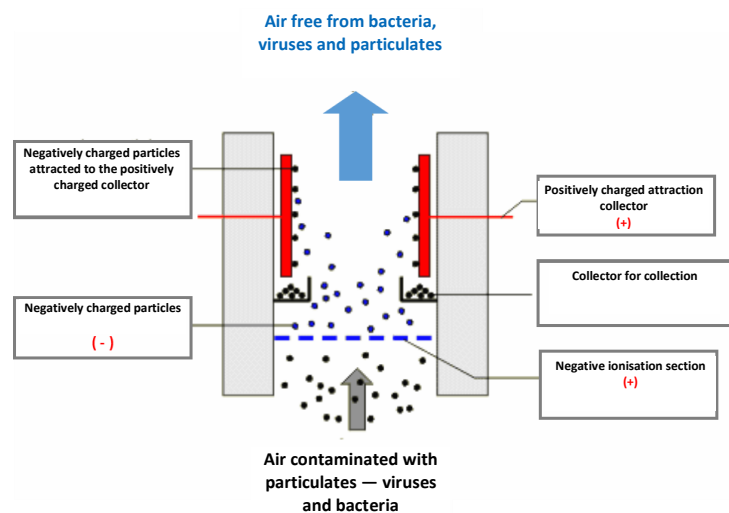
5- Operating principle

Below is an example of the various air filtering stages intended for the purification and sterilisation thereof.



Pre-filter: Made of pleated stainless steel mesh, it captures coarse dust particles and prevents them from entering the subsequent fine filtering stages. This filter does not require replacement; simply wash it following the instructions provided later on in this guide.

ESP filter: This filter, which is the core of the machine, is a patented technology in adaptive voltage control systems. The ionising section of the filter, powered by 8000 V, ionises the particles as they pass through so that they can then be captured by the collectors charged to 4000 V (positive charge). The force of attraction, described by Coulomb's law, created between the negatively charged particles and the positively charged collectors is huge, about 36,000 times higher than the gravitational force. See the figure below, illustrating the ionisation process that takes place in this section of the ESP filter.



During the ionisation process at 8000 V, all bacterial and viral loads are destroyed as a result of the high electrical voltage and the corona effect generated in the ionisation area. The ionisation process also produces a small amount of Ozone (O₃).

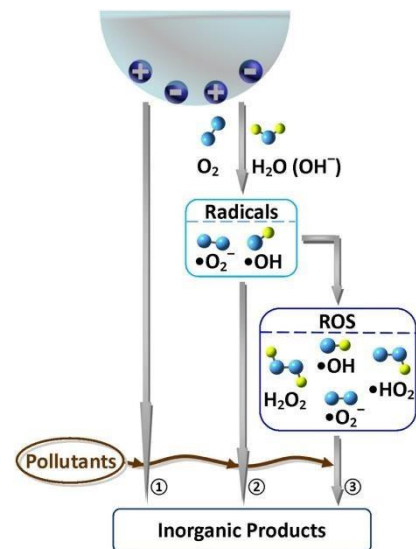
Ozone has an oxidative effect on Viruses and Bacteria, destroying them completely. Thanks to the adaptive control that adjusts the voltage of the two sections (the ionising section and the collecting section), the Ozone production is kept at very low levels, 0.002 ppm, which are far below the minimum allowable level of 0.05 ppm, without subjecting the persons in the room to any risk. Wash the ESP filter once every three months; it does not require replacement.

Germicidal UV-C lamp: The treated air coming out of the ESP section passes through UV-C lamps that emit ultraviolet radiation with a frequency between 200 and 280 nm; this radiation has a very strong virucidal and bactericidal action. Also, the lamps activate the next photocatalytic filtering stage. Replace the lamps once every 5 years.

Photocatalytic filter: It consists of metal oxides and Titanium oxides (TiO₂) activated by the UV radiation emitted by the lamps. The viruses are inactivated by hydroxyl radicals (•O₂- and OH•) bound to the surface of the catalyst. The subsequent decomposition mechanism involves the degradation of the cell wall and cytoplasmic membrane as a result of the generation of reactive oxygen species (ROS). This initially causes the cell constituents to spill out, leading then to cell lysis, followed by a complete mineralisation of the organism. The closer the contact between the virus and the catalyst, the stronger the virucidal effect.

Photocatalytic plasma filter: The same concept described above applies, mainly targeting the formaldehyde (CH₂O), aiming for its neutralisation.

Catalyst filters shall be cleaned by vacuum cleaner only, avoiding the use of water or any other liquids that would damage them.

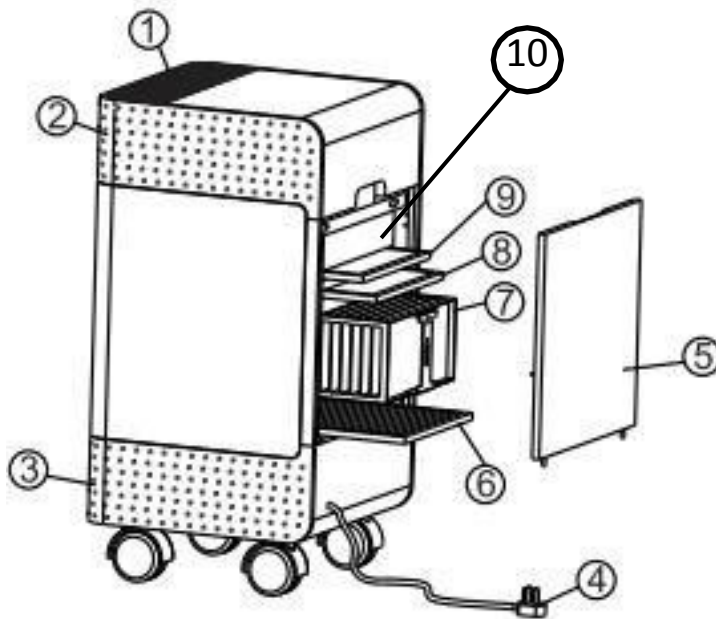


The combined action of these different filter systems allows obtaining medical grade purified air; all our tests have been certified by the microbiological laboratory: GUANGZHOU TESTING CENTER OF INDUSTRIAL MICROBIOLOGY .

Air purification parameters	
PM2.5 particulate removal	> 99,98%
Formaldehyde removal	> 94%
Virus - Bacteria - Mould Removal	> 99,96%
VOC (volatile organic compounds) removal	> 92 %
Pollen Removal	> 99.98 %

6- Part description

1.3 Part description



- 1) Control panel
- 2) Air outlet
- 3) Air inlet
- 4) Power plug
- 5) Filter access panel
- 6) Pre-filter
- 7) ESP unit
- 8) Catalytic Filter for Formaldehyde
- 9) Catalytic Plasma Filter for TVOC
- 10) Germicidal UV-C lamp

7- Where to place Medical Air pro

2.1 Preliminary steps

Remove all the packaging.

Check that the machine is intact and accompanied by the user guide. Read the user guide carefully.

Check the rating plate to ensure that the power supply available at the premises is suitable for the appliance. Check the product for any signs of damage. If there are any, please contact your local dealer.

Correct positioning

The appliance is equipped with four swivel castors at the bottom for easy handling and positioning

Release the two rear wheels by pulling the brake up before pushing the Product. When lifting the product, make sure to grab it from the bottom.

Notes to be observed when choosing the place of installation

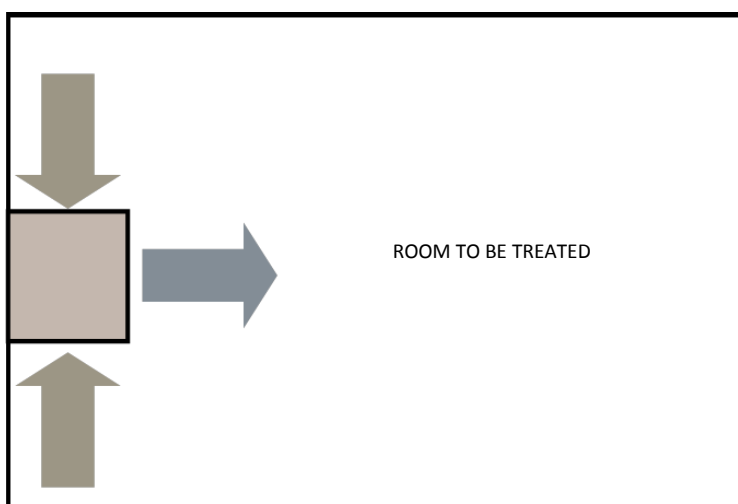
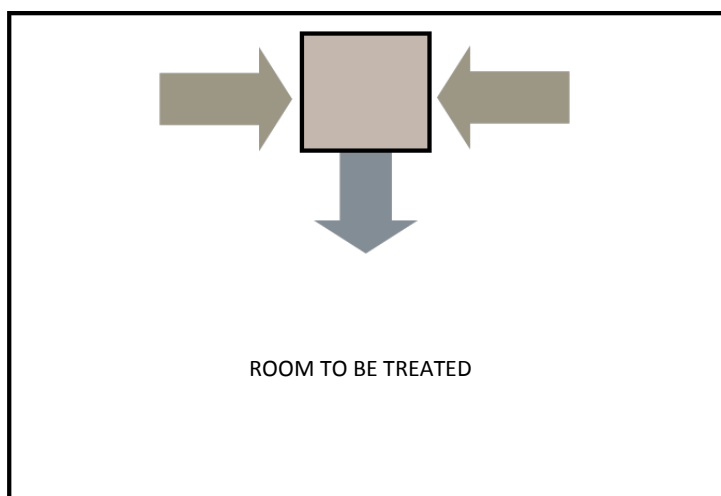
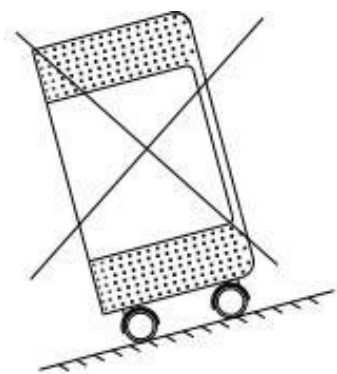
The product should be placed indoors, away from splashing water.

Do not use the product outdoors.

Position the product, as far as possible, centrally to the area to be treated, on a flat, level floor.

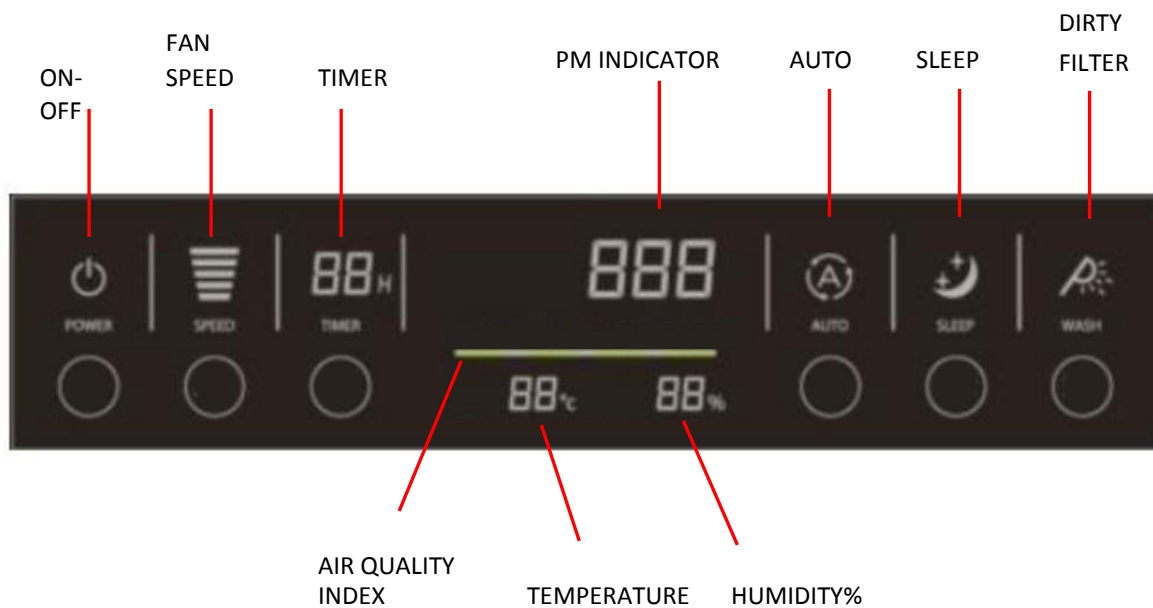


NO



8- Starting the appliance

Control panel



The index shows the air quality level: good, normal, mild pollution, severe pollution. All the buttons are capacitive touch buttons that can be operated by simply tapping them. The control panel manages all the functions of the machine and can also be used to control the overall conditions of the ambient air such as temperature, humidity, level of PM and quality index.

2.3.2 Operation

Press the ON-OFF (Power to start the machine) button and select the desired mode. There are three available modes:

Manual : To enable the manual mode, simply press the Speed button to select the desired air speed. The higher the speed, the larger the volume of treated air. The lower the speed, the higher the effectiveness of the filter.

Auto : By pressing the Auto button, the speed of the fan will be set automatically. If the quality of the air is low, the machine will set the fan to a high speed to treat the ambient air more quickly and improve its quality. Once the air quality level is "good", the machine reduces the fan speed automatically to optimise the purification and acoustic comfort level.

Sleep: When the sleep function is enabled, the machine works at the minimum speed to reduce the noise and all sounds are disabled (such as the control function beeps).

The 5 fan speeds correspond to different air flow rates; below is a table with the flow rates and the number of times the entire volume of air in 30 m² or 50 m² premises will be treated. The calculation was done considering an average ceiling height of 2.7 m

FAN SPEED	AIR FLOW RATE IN M ³ /HOUR	HOW MANY TIMES IS ALL THE AIR INSIDE A 30 M ² ROOM TREATED WITHIN 1 HOUR	HOW MANY TIMES IS ALL THE AIR INSIDE A 50 M ² ROOM TREATED WITHIN 1 HOUR
SPD.1	100 M ³ /H	1.2 TIMES	0.8 TIMES
SPD.2	200 M ³ /H	2.. 4 TIMES	1.5 TIMES
SPD.3	300 M ³ /H	3.7 TIMES	2.2 TIMES
SPD.4	500 M ³ /H	5 TIMES	3 TIMES
SPD.5	500 M ³ /H	6.2 TIMES	3.7 TIMES

9- Cleaning the filters

Dirty filter indicator and signal reset

When the dirty filter light turns from white to red, it means that the filters must be cleaned. To reset the flashing light, simply press and hold the dirty filter button for more than three seconds; the light will turn off and the indicator will get reset once the cleaning process is complete.

Cleaning and maintenance

How often to clean the filters

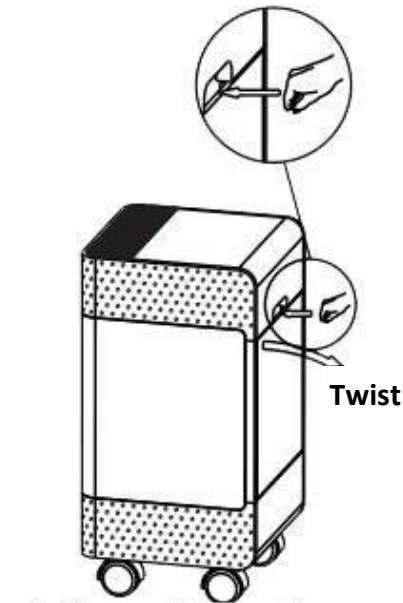
After long periods of use (approximately 3 months) or whenever the dirty filter light turns on; for optimum performance, we recommend cleaning the filters as indicated below.

How to clean the filters

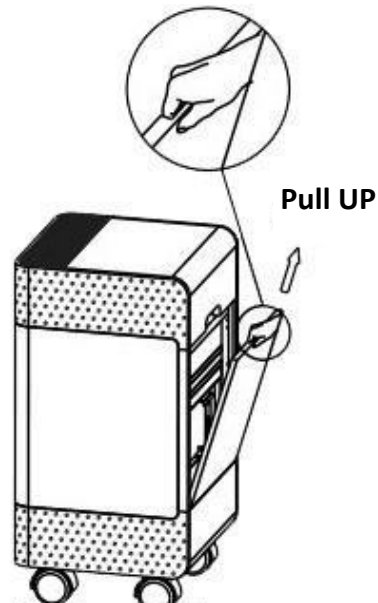
Before cleaning the filters, unplug the appliance and lock its wheels with the brake to prevent it from moving.

Filter cleaning

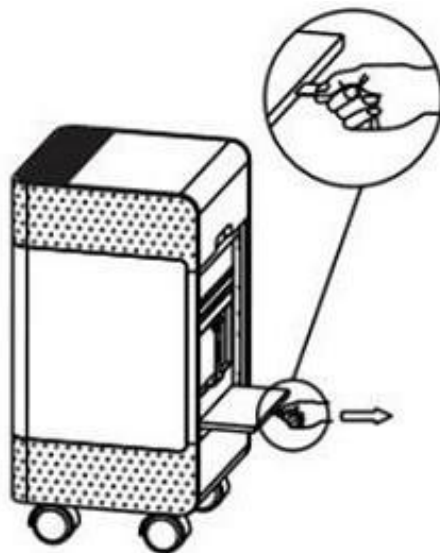
Open the rear door



1—Open the rear door by hand



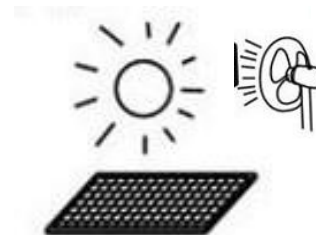
2—Twist the door and pull it up to remove it



3—Pull out the pre-filter as shown in the figure



4—wash the pre-filter under running water

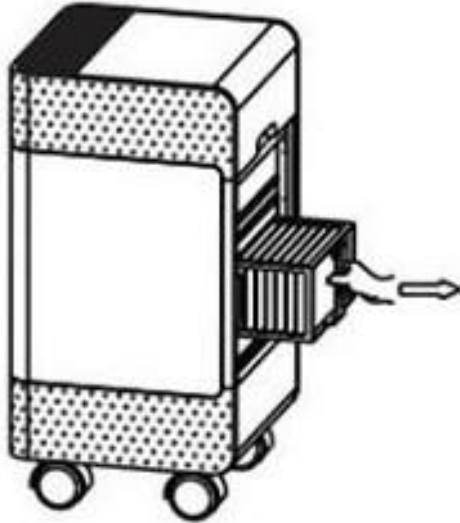


5—Allow the filter to dry in the sun or dry it with a blow dryer or a fan



Figure showing the pre-filter on the side

Removing the ESP filter



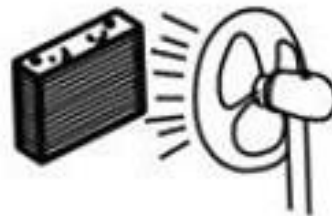
6—Pull out the ESP filter as shown in the figure



7—Soak the ESP filter in water and dishwashing soap for 30-40 minutes



8—Remove all the dirt by placing it under running water



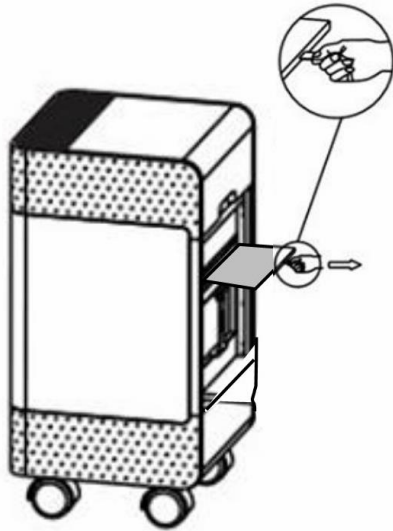
9—Dry the filter completely with a blow dryer or a fan



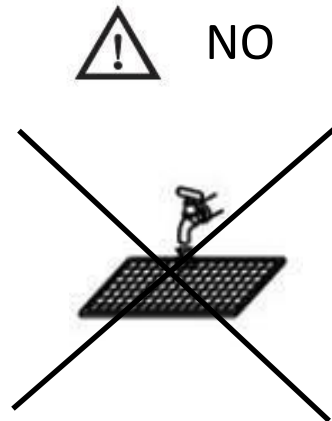
Very Important Note

Before placing the ESP filter back in the machine, make sure that it is completely dry and has no water drops on its surface; since the filter is supplied with electrical energy, if it is not completely dry, the humidity may reduce the clearances between the conductive parts, creating electrical discharges and damaging the device and the circuit board.

Removing the photocatalytic filters



10—Pull out the two photocatalytic filters



11—Do not wash photocatalytic filters with water; this may damage them



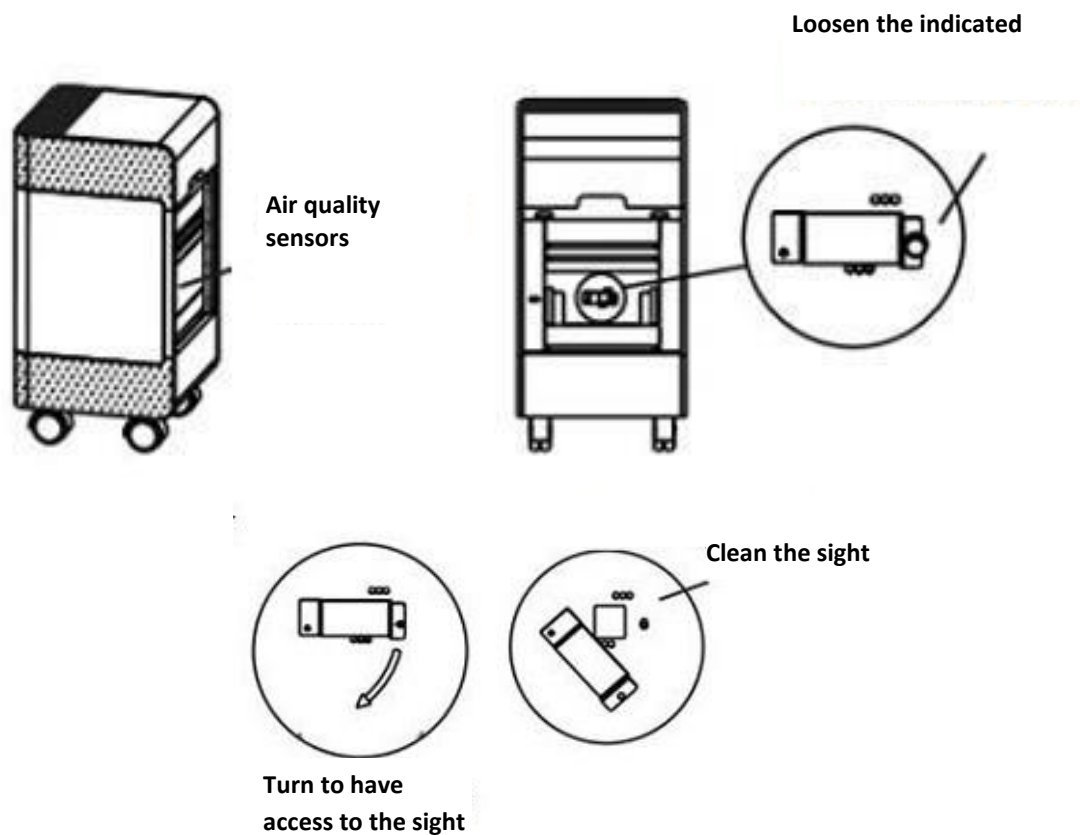
12—Remove any dirt with a vacuum cleaner



Very Important Note

Do not wash the two photocatalytic filters with water or any other liquid; this would damage the titanium oxide-based porous material. Vacuum clean them once every 3-4 months using a normal vacuum cleaner with a nozzle. Do not use compressed air guns or hot air blow dryers; this may damage the filter irreparably. Replace the filters at least once every 4 years

3.2.1 Cleaning the dirty filter sight glass



Cleaning procedure

Also clean the dirty filter sight glass whenever cleaning the filters.

The ESP filter box includes a metal cover that must be removed in order to gain access to the sight glass. Clean the sight glass with a dry cotton pad.

Place the filters back in correctly, as shown in the figure below

Pay attention to respect the indicated sequence and start the machine only after completing the work; turning on the machine without the filters may damage it irreparably.



10- Troubleshooting

Troubleshooting			
	PROBLEM FOUND	CAUSE ANALYSIS	POSSIBLE SOLUTION
1	The machine does not start	The machine is not connected to the power supply	Check that the plug is connected to a powered socket
		No access to the machine	Press the ON-OFF button
		The sensor of the box containing the rear ESP filters has not been pressed	Check that the safety switch on the back of the machine has been pressed
2	The machine makes abnormal noises like cracks or small crunches	There are impurities inside the ESP filter	Clean the ESP filter
		The ESP filter is damp	Dry the filter properly
		There are mosquitoes, flies or insects inside the ESP filter	Clean the filter immediately
		The filter is deformed	Contact the technical support centre to replace the filter
3	E1 alarm on display	One or several of the tungsten threads that form the ionising section of the filter are broken	Contact the technical support centre immediately and stop using the machine
		The ESP filter box contains moisture and the sensor detects it as a short circuit	Allow the filter to dry completely, as described in the previous pages
		The circuit board is damaged	Contact the technical support centre immediately and stop using the machine
4	The machine does not clean the air and there is a smell coming from it	The filters are dirty	clean them
		The catalytic filters are dirty	replace them

11- CE - LVD - EMC certification

Zymbo Italia S.r.l., with registered office in Via Levrini 13 –25080 Padenghe sul Garda — BS - Italy hereby DECLARES under its own responsibility that the following products:

Medical Air Pro: Medical grade air purifier

Complies with the low voltage directive: 2006/95/EC

Certificate issued by the Shenzhen Certification Technology Service Co.Ltd laboratory — STE number 130609294

Complies with the Electromagnetic Compatibility Directive: 2014/108/EC

Certificate issued by the Shenzhen Certification Technology Service Co.Ltd laboratory —STE number 130609777



WARRANTY CERTIFICATE



Zymbo Italia S.r.l., with registered office in Via Levrini 13 –25080 Padenghe sul Garda — BS - Italy, hereby DECLARES that the following products:

Medical Air Pro: Medical grade air purifier

have a 2-year warranty from the date of purchase. We recommend that you write down the data below in case of failure before contacting the support service.

Technical Support Centre phone contact: 030-990 7908

E-mail contact: technical.consultant@zymbo.eu

Date of purchase:

Receipt or invoice number:

Product purchased from:

SCHEDULED MAINTENANCE

For optimum performance, we recommend cleaning the filters installed on Medical Air pro at least once every three months. Use this form to record all the cleaning and maintenance operations (both routine and extraordinary) performed on the filters



Date	Work	Person	Signature
	Initial start up		

Medical Air_{PRO}



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