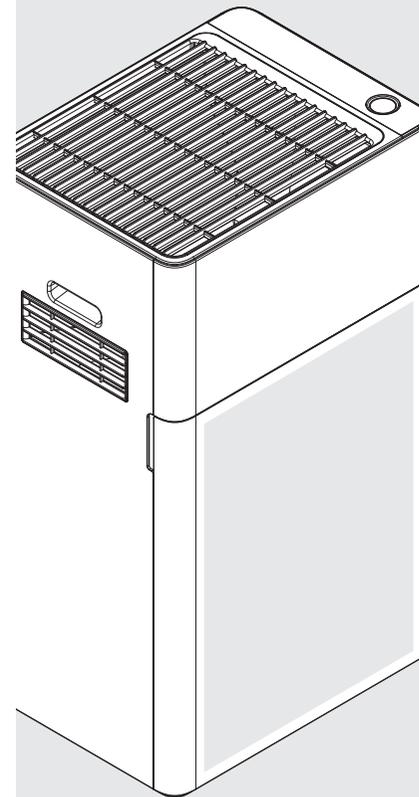


# Air purifier Operation manual

WHA-400



## ◆ Direction

- Precautions ..... 2 ~ 8
- Characteristic ..... 9
- Name of parts ..... 10
- Control/ signs ..... 11
- User Instruction ..... 12~13
- Rate of Ultrafine dust ..... 14
- How to change filter ..... 15~16
- How to clean filter ..... 17
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- Size ..... 19
- Warranty ..... 20

Order to safely and use rightfully please read this manual carefully.  
Please keep this manual (Product warranty is included).

# Precautions

Please read carefully following precautions to avoid unpredictable dangers and damages.

Depending on the degree of danger and damage that could occur from improper use, precautions are divided into 3 types as below.

**Danger** If not observed, serious injury or even death could occur.

**Warning** If not observed, serious injury or property damage could occur.

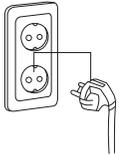
**Caution** If not observed, Slight injury of property damage could occur.

This mark is for calling attention to dangers caused by improper use. Please read carefully and follow the precautions

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

**Danger** This product must be plugged into AC220V outlet.

※ it may cause fire, malfunction or shock.



**Danger** Before use, please wipe dust of other foreign substances off on the plug.

※ It may cause fire or shock



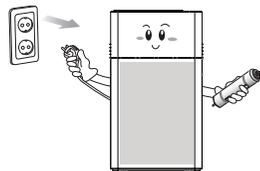
**Danger** Do not use the product if the plug is damaged.

※ When the plug is damaged, contact customer service center or retail store.



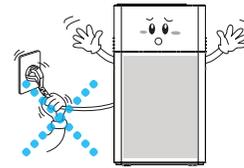
**Danger** Unplug the cord, while changing filter.

※ It may cause fire or shock.



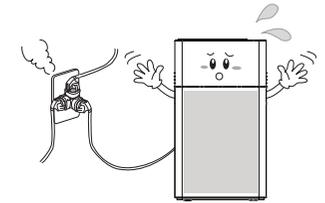
**Danger** Do not bend or tie. And do not pull the cord too hard.

※ It may cause fire or shock.



**Danger** Do not use the multi-tap.

※ It may cause fire or shock.



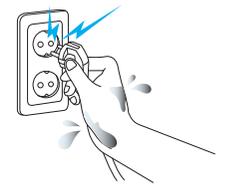
**Danger** Do not replace or modify the plug

※ It may cause fire or shock.



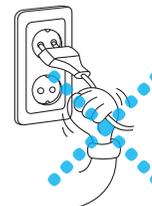
**Danger** Do not touch the plug with wet hand.

※ It may cause electronic shock



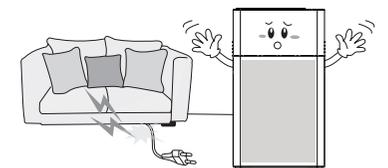
**Danger** Do not disconnect the plug by cord.

※ It may cause fire or shock.



**Danger** Do not bend the power cord. And do not put any heavy object on the power cord.

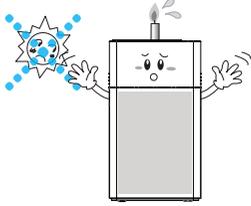
※ It may cause fire or shock.



# Precautions

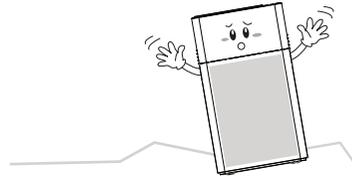
**Caution** Keep away from direct sun light and flame.

※ It may cause deformation.



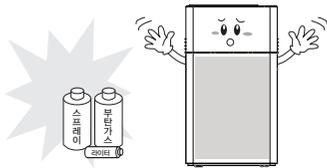
**Caution** Place on flat surface

※ It may cause malfunction.



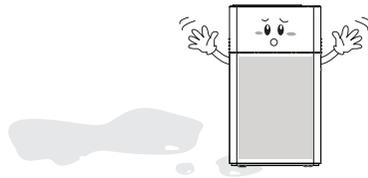
**Danger** Do not put any flammable objects around.

※ It may cause explosion or fire.



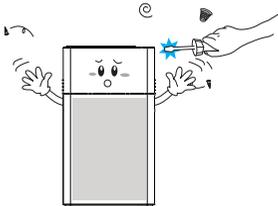
**Danger** Do not place at wet environments.  
(ex. Swimming pool, bathroom)

※ It may cause fire, malfunction or shock.



**Danger** Do not disassemble, repair or modify salves.

※ It may cause fire, malfunction or shock.



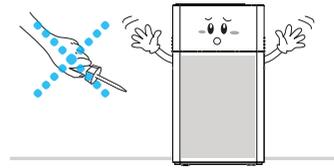
**Danger** Keep the distance from flammable object at least 1meter.

※ It may cause explosion or fire.



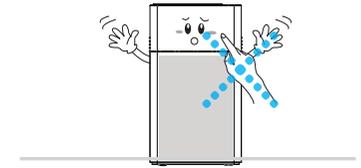
**Danger** Do not insert sharp object.  
(ex. Awl, metal wire)

※ It may cause fire, malfunction or shock.



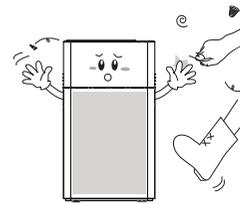
**Warning** Do not touch the inner part with wet hand.

※ It may cause electronic shock.



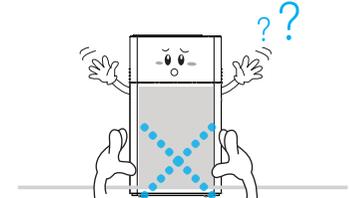
**Danger** Do not kick or damage the purifier.

※ It may cause malfunction or shock.



**Caution** Do not relocate the purifier while operating.

※ It may cause malfunction.



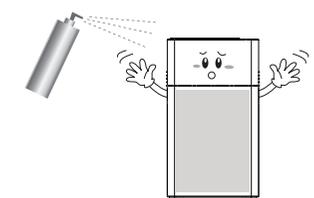
**Caution** Do not place heavy object on purifier.

※ It may cause malfunction.



**Danger** Do not spray pesticide or flammable liquids.

※ harmful to human body also it may cause malfunction

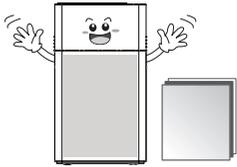


# Precautions



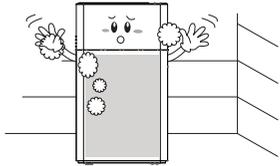
Do not operate without the filters.

※ It shortens the lifespan also it may cause a fire, malfunction or shock.



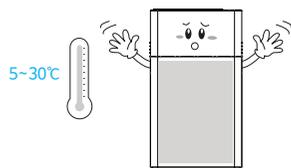
Do not use in the oily environment and dusty environment caused by construction.

※ It causes shortens the lifespan. Order to prevent this issue ventilate the room before use.



Do not use the purifier in hot or cold room temperature.

※ Optimum temperature (5~30°C). It causes deformation and discoloration.



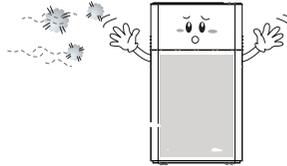
Before storage cover the purifier with cover.

※ It not it can decrease the performance.



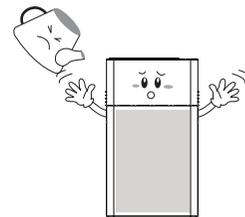
Do not locate the purifier in the room fill up with toxic gases.

※ It may cause malfunction.



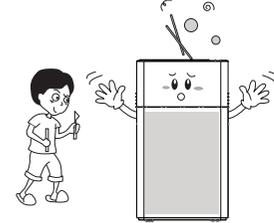
Do not pour or spray water into the purifier.

※ It may cause malfunction and shock.



Do not insert any object into the purifier.

※ Especially notify the children. I can cause a wound, damage, and malfunction.



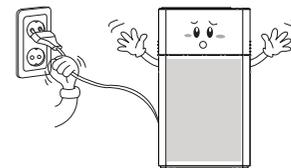
Do not block the inlet and outlet.

※ It causes a decrease in performance and malfunction.



Do not unplug the plug and move the purifier while purifier is operating.

※ It may cause malfunction, wound, and damage.

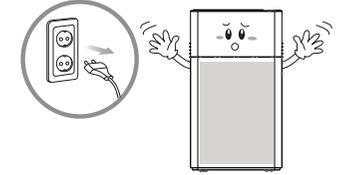


# Precautions



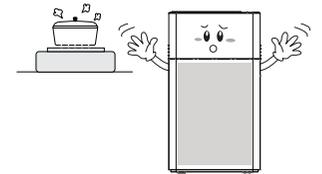
Stop use immediately when it starting to smoke, making a weird noise, and smell.

※ Stop and unplug the plug immediately and call the customer service.



Do not use the purifier for any purpose other than indoor air purification.

※ It is not kitchen fan. Also, it shortens the lifespan and deformation.



Do not let the children play with the purifier.

※ This is not a toy! Also, it may cause malfunction, wound, and damage.



## The Safe place to locate

Room without the direct sunlight.

- ▶ It may cause a malfunction

Do not locate in humid and unventilated room

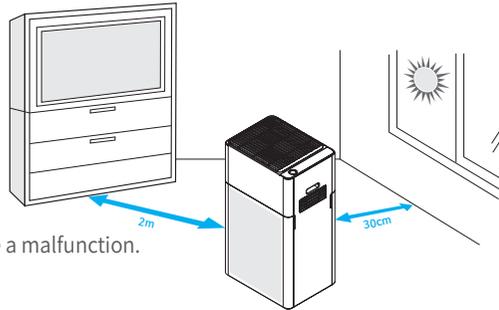
- ▶ It may cause fire and shock

Keep the distance with any electronic device

- ▶ Electromagnetic from other devices can cause a malfunction.

Place on flat hard floor

- ▶ If not it may cause noise and vibration.  
Place the unit at least 30cm away from the wall.



## Knowledge of product

Always operate with filters. If you smell the unpleasant smell, Please replace the filter.

- ▶ This Air purifier cannot purify air without filters.
- ▶ If the filter is crummy it decrease in performance. The exterior is extremely dirty and smell please replace the filters. Also when the air volume is decreased.

Do not use the purifier for reduce odor during cooking

- ▶ This kind of odor will shortens the filters lifespan
- ▶ This kind of odor can be stuck into HEPA, and perfect filter. If so please replace the filters.

While operating purifier, please close the window and door.

- ▶ If the window and door is open, the air purifier will be less effective.
- ▶ Toxic gas unable to purify: Carbon monoxide (CO)

Ventilate the room periodic

- ▶ When the purifier is operated with doors close, the density of carbon dioxide will increase. This purifiers' ventilation alarm is on please turn off the purifier and ventilate the room and restart the purifier. (Purifier cannot purify carbon dioxide.)

### ◆ Large capacity purifier

This purifier is capable to purify large applicable area such as office, living room, public place.

### ◆ Simple design

With simple black and white color design, this purifier can be match with any room.

### ◆ Double side inlet and multi-direction outlet

Order to have Double side inlet filters is attached in both front and back

### ◆ Four stage of filters

- Pre-filter: it filters out the big particle dust (ex. Hair, pollen)
- Anti-allergy filter (WHA-400): it filters out influenza and daily odor. Also, deactivate Sulfur atom bounding to destroy allergy ingredient.
- HEPA-filter: filters out the small size particle such as bacteria, tobacco smoke, mold, and etc.
- Deodorization-filter: it filters formaldehyde and daily odor to keep pleasant environment.

### ◆ Dust sensor

This purifier have dust sensor that can detect the PM2.5 and it display density by number.

### ◆ VOC

It detect the Odorous substance TVOC (TOTAL Volatile Organic Compounds) and send the information and display on connected smart phone.

### ◆ Temperature/humidity sensor

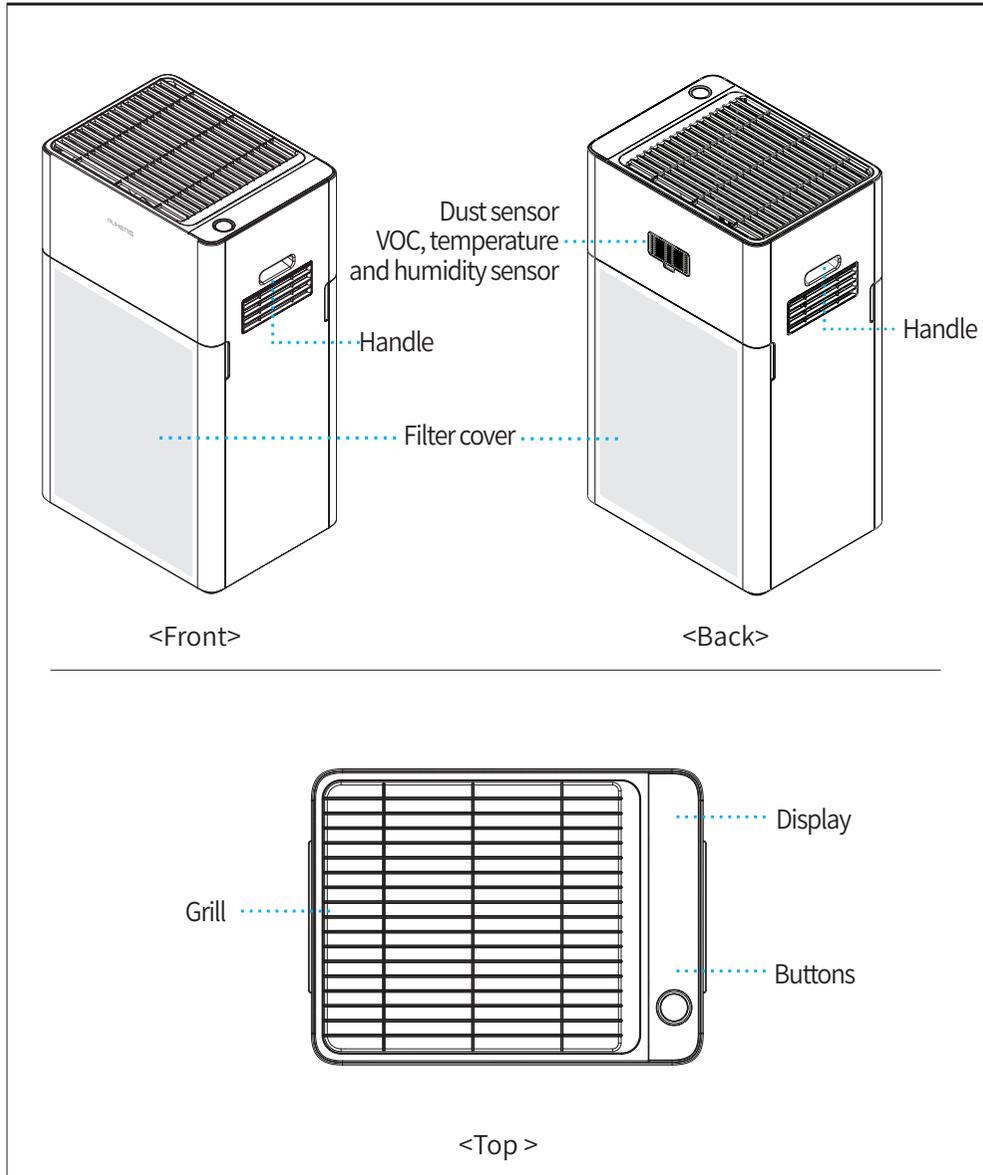
It detects the temperature and humidity so the user can monitor the condition.

### ◆ Cluster ion generator

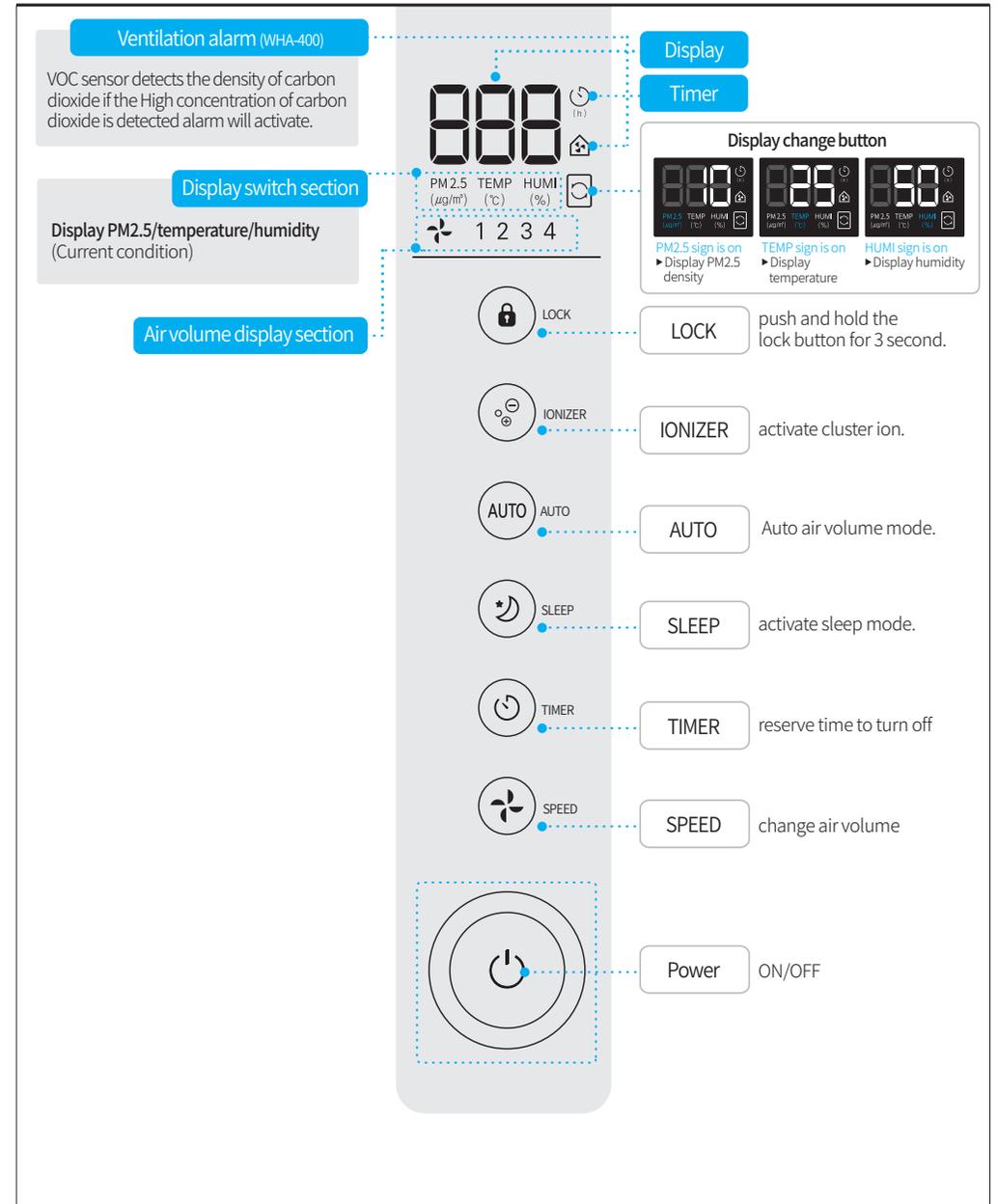
It deploys hydrogen ion (H+) and oxygen ion (O<sup>2-</sup>), combine with moisture and ion form the Cluster ion. Cluster ion forms the OH radical when it combines with the hazardous substance. OH radical has the strong Oxidative power, it destroys the hazardous substance.

# Name of parts

## Model No. WHA-400



# Control / signs



※ For your safety and proper use of the product, Please read and understand the followings before use.

## 1. Power button

- ① It turns on/off the power
- ② Air purifier will start with Buzzer sound.
  - ※ air volume will set at 1
  - ※ While first 30second pollution display section color of light will change and will reset the Dust/VOC sensor. In this stage, PM2.5 density will not display after 30-second total pollution rate and PM2.5 will display on purifier.

## 2. Air volume button

- ① Each time the user push the button air volume will change as this order; stage1 ▶ stage2 ▶ stage3 ▶ stage4 ▶ repeat.
- ② Current air volume stage will display next to the fan sign by numbers.



## 3. Timer button

- ① Reserve time to be off. Timer LED light will be on, and it will display set time. Each time user push the button it will change set time in this order; 1H ▶ 2H ▶ 4H ▶ 8H ▶ 12H ▶ OFF ▶ repeat.
- ② When the timer is set the set time will display after 10second, also user can check the set up with timer LED light.
- ③ Purifier will turn off after set a time.

## 4. Sleep mode

- ① It set the sleep mode. Air volume will decrease less than stage 1, display light will get dimmer, and buttons' buzzer sound will be off.
- ② Re-push the button will deactivate the sleep mode.
- ③ Can use the timer during sleep mode by just pushing a timer button.

## 5. Auto button

- ① It set the automatic air volume mode. It automatically changes the air volume by comprehensive data from the VOC sensor and Dust sensor.
- ② It activate with 3 stages;
  - Good (blue)-stage 1, normal (green)-stage 2, bad (yellow)/very bad (red)-stage 3.

## 6. Ion button

It activates the cluster ion generator, ion sign will lit up.

## 7. Lock button

- ① It activates lock mode. Lock sign will lit up, the buzzer will sound.
- ② When the lock mode is on, other functions button will not function.

## 8. Display change button

- ① Each time the user pushes this button display will change as this order; PM2.5 density ▶ temperature ▶ humidity ▶ repeat.
- ② PM2.5 volume : 5~999  $\mu\text{g}/\text{m}^3$  displayable.
- ③ Temperature: 0~100 °C displayable.
- ④ Humidity (relative humidity): 0~100% RH displayable

# Rate of Ultrafine dust

## Rate of Ultrafine dust

### What is PM2.5?

Dust particle size is less than 2.5µm. According to research, smaller particle affects the human health. So all the developed countries instructed since the late 90's.  
 Since July 2017 Republic of Korea change environment standard; 15µg/m<sup>3</sup> yearly to 35µg/m<sup>3</sup> daily.

- the density of PM2.5 start with 5 till 999 display single decibel.
- the density rate of PM2.5 is informed from the sensor manufacturer database.
- the stage of PM2.5 density is informed from the minister of environment PM2.5 forecast.
- The stage of PM2.5 density informed by a PM2.5 forecast from the minister of environment.
- the density of PM2.5 can differ indoor and outdoor.
- Ruhens air purifier's rate of PM2.5 a density might differ than other brands air purifiers' and measuring instrument.
- the rate of PM2.5 density can be affected by surrounding and air flow.
- the rate of PM2.5 density can be affected by the environment (Roadside, factory, construction site)
- The dust storm, a PM2.5 alert is activated air is keep came from outside, the rate of density might continuously increase.

### What is TVOC?

VOC (Volatile Organic Compounds) is gas of liquid organic compound evaporates at a low temperature. VOC and Nitrogen oxide photochemical reaction occurs it produces ozone and photochemical oxidant. It is carcinogenicity particle similar to photochemical smog, benzene extremely harmful to the human body. Also, styrene and most VOC classified as particle cause stink odor.  
 TVOC (Total Volatile Organic Compound) is named all kind of VOC gases, its uses as a guideline for Environmental diagnosis.

- VOC and CO2 density measures might differ from real measures. About 5 minutes after Power is on.
- products occur odor such as Perfume, air freshener, detergent might effect TVOC measures, do not place the purifier for long time place occurs odor.
- if the sensor is close to the product occurs odor might display the total pollution level continuously high.
- Ruhens air Purifier follows German Federal Environment Agency's TVOC pollution rate lighting colors.  
 (The Republic Of Korea do not have any guideline)

# How to change filter

## Precautions for the filter

### 1. Precautions for the filter

- Always use original filter.
- If need to purchase filter please contact customer service center.
- Please follow the instruction for change filter.

### 2. Precautions before changing filter

- Always unplug the power cord before changing the filter.
- remove the packing. If not it will cause the noise and overheat the motor.
- after packing removed filter is not refundable.

## Characteristic of Filters

### 1. Pre-filter

It filters out the big particle dust (ex. Hair, pollen)

### 2. Anti-allergy filter

It filters out influenza and daily odor. Also, deactivate Sulfur atom bounding to destroy allergy ingredient

### 3. HEPA filter

It filters out the small size particle (0.3µm) such as bacteria, tobacco smoke, mold, and etc.

### 4. Deodorization-filter

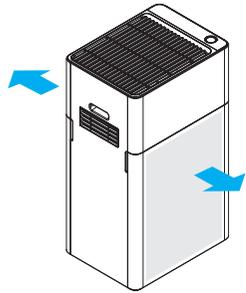
It filters formaldehyde and daily odor to keep pleasant environment.

## Filters lifespan

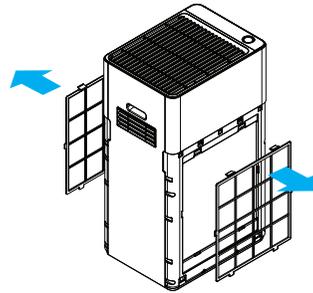
division	1 stage	2 stage	3 stage	4 stage
Filter	Pre-filter	Anti-allergy filter	HEPA filter	Deodorization-filter
Time for change	Semi-permanent	About a 4 month	About a year	About an 8 month
Cleaning	Clean with water (once a month)	Cannot be clean Change the filter	Cannot be clean Change the filter	Cannot be clean Change the filter

## How to change filter

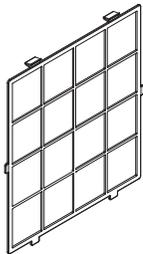
1. After unplug the plug pull it off the front and back filter cover.



2. After removes pre-filter grab a filter handle and pull it off.

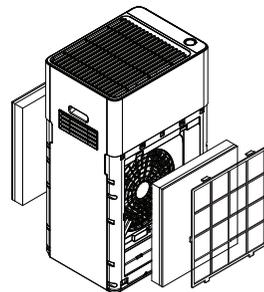


3. Re-use the pre-filter after clearly washed with water and fully dry under the shade.

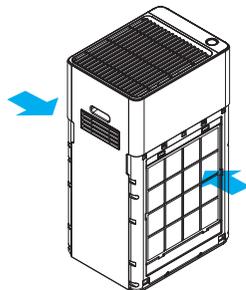


4. Insert the new filter in the order.

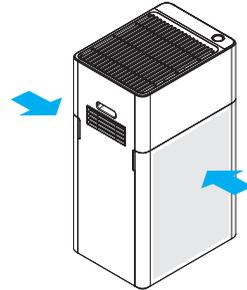
- ※ From inside: ① HEPA filter ② De-odor filter.
- ③ Anti-allergy filter ④ Pre-filter
- ※ Please follow the insert direction on side of HEPA-filter.



5. Attach the pre-filter.



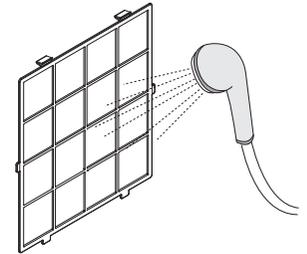
6. Attach the filter cover.



## How to clean filter

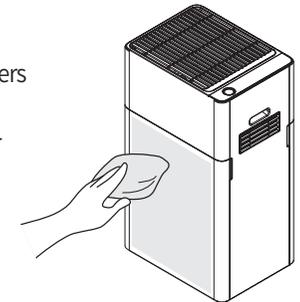
### How to clean Pre-filter

- Every once a month clean the pre-filter carefully with water.
- do not use benzene, alcohol, volatility detergent and hot water(over 40°C) It causes the damages and discoloration.
- the term of cleaning can be change by usage and surround air quality.



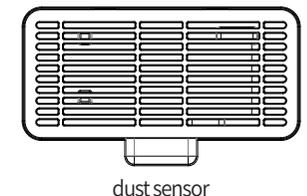
### How to clean exterior?

- Wipe with dry cloth.
- Every once or twice a month clean the back and front filter covers with dust cleaner or vacuum.
- do not use benzene, alcohol, volatility detergent and hot water (over 40°C) It causes the damages and discoloration.
- do not use water, thinner, or any volatility liquid.



### How to clean dust sensor?

- Unplug the cord before cleaning.
- Open the dust sensor cover and carefully wipe the lens with Q-tip
- If the foreign partials (such as dust) is around the sensor, the rate of pollution might get disrupt.
- Clean the dust sensor every 6 month. Cleaning term can be change by pollution and amount of use.



dust sensor

## Check-list before call

※ Check the list below before report failure.  
If still causing a trouble after following the list below please contact Service center or Retail store.

ISSUE	Cause	Solution
<b>The purifier is Not working.</b>	Is it Power plug is fully plugged?	Re-Plug the power plug correctly.
	Is it blackout?	Check the power state
	Is it Filter cover is not attached? (WHA-400, WHA-410)	Attach the filter cover correctly.
<b>AUTO mode is not working.</b>	Is it Power plug is fully plugged?	Plug the power plug correctly.
	Did you select the AUTO mode?	Push the air volume button to select AUTO mode
<b>Total pollution level sign is kept lighting red.</b>	Did you clean the sensor?	Clean the sensor.
	Is Something causing odor near Purifier? (WHA-400, WHA-410)	Relocate the purifier. If still causing a trouble please contact the service center.
<b>Making a loud noise and vibrate.</b>	Is it located on an uneven floor?	Relocate the purifier on the evenly flat floor. (All the legs need to touch the floor)
<b>Power plug and the power outlet is overheating.</b>	Is it Power plug is fully plugged?	Re-Plug the power plug correctly.
<b>Funny smell</b>	Is it Any smoke and smelly substances is round?	Clean the pre-filter and change the other filter.
<b>Is not purifying the air.</b>	Is it compacted with dust or air outlet is a block with any objects.	Clear off the objects on the outlet.
<b>Unusual sign.</b>	Specific sign part is lighting up and makes “Ding Ding” sound. (WHA-400, WHA-410)	Attach the filter cover correctly. If it kept making sound please contact customer service.
<b>Unusual sound</b>	It makes scratching noise. (WHA-400, WHA-410)	When the cluster ion generator is operating it makes the scratching noise.

## Size

<b>Product Name</b>	Air Purifier
<b>Model Name</b>	WHA-400
<b>Power Rating</b>	AC 220-240V / 50Hz
<b>Size</b>	440(W)*330(D)*767.5(H)mm
<b>Weight</b>	About 14kg
<b>Power consumption</b>	80W

# PRODUCT WARRANTY

Product	Model	<input type="checkbox"/> WHA-400	
	MFG DATE		
Date of Purchase	Year	Month	Day
Customer's Name			
Dealer's Name			

## WARRANTY GUIDE

1. Product warranty period is 12 months from the date of purchase.
2. The following repairs will be provided at cost:
  - Expired Warranty
  - Malfunction caused by careless use and or abnormal use.
  - Malfunction caused by natural disaster
  - This product Warranty paper is lost