



# DYNAMIC

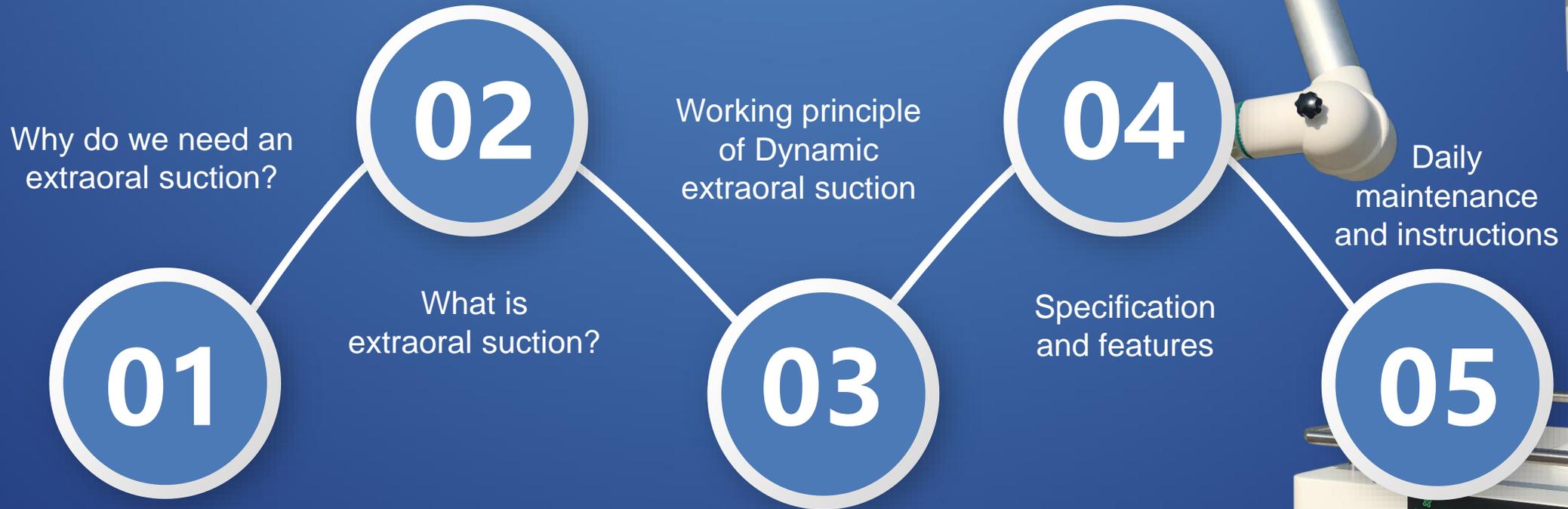
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## Extraoral Suction

Design for keeping safe



# Contents





PART 01

# Why do we need extraoral suction?



# Aerosols and droplets in dental clinics

Most of the dental treatments require dental instruments, such as high and low speed handpiece, ultrasonic scaler, polishers and so on. During the working of these instruments, the combination of compressed air and water is vaporized during the circulation process, generating aerosols and droplets. They will stay a long time within the range of 1-2 meters around dental chair, stomatological department and pneumology department are the most at-risk susceptible population.



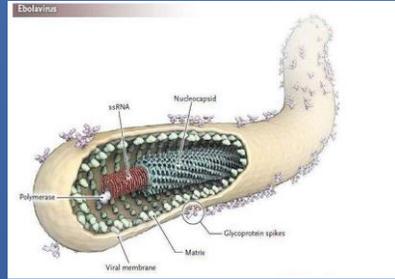
ultrasonic scaler



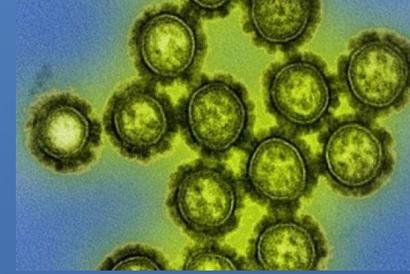
High/low speed handpiece



# Aerosol transmission: One of the most dangerous ways of virus transmission



Ebola virus



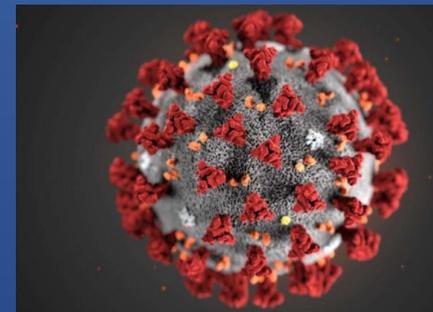
Influenza virus



Coronavirus COVID-19



SARS virus





# Potential particles of spreading disease

Aerosols would be created during oral treatment, aerosols are suspended in the air for a long time until they settle on the surface of the environment or are inhaled into the human respiratory tract. They have strong penetrating power and are considered to be the most likely to be inhaled as potential particles for transmitting diseases in the lungs.



During the treatment, doctors may use ultrasonic scaler, 3-way syringe, high and low speed handpiece spray to generate a large amount of water mist combined with bacteria such as saliva, blood and stones in the patient's mouth, which will produce aerosols. The oral suction removes these aerosols to prevent cross-infection between the doctors and the patients. Provide a clear, dry and clean circumstance.





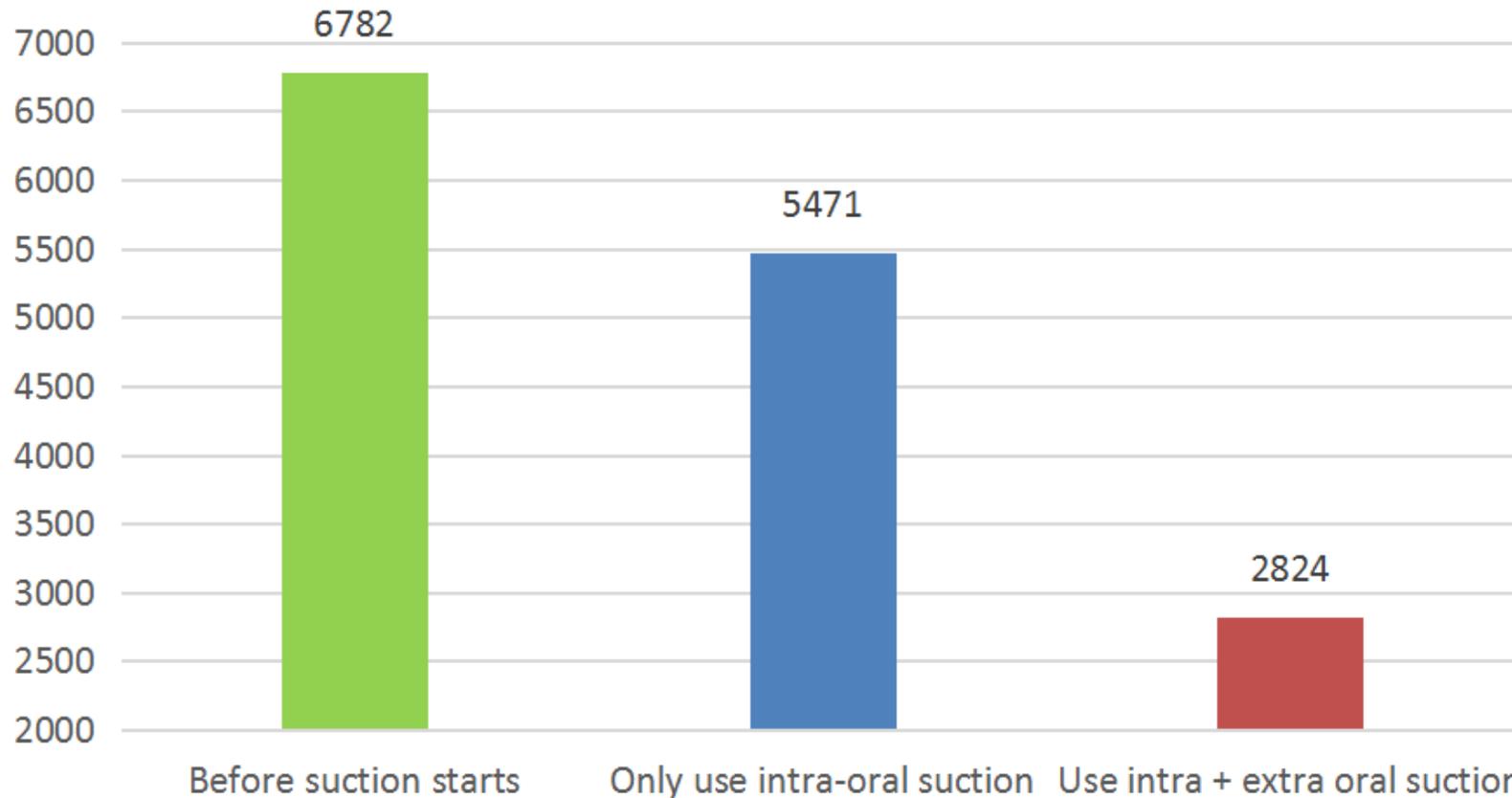
# Before & After using of DS1000





# Only use intra-oral suction can not inhibit droplets (particulate matter greater than 0.5)

Determination of the number of droplets and dust( $\geq 0.5\mu$ )



The number of droplets detected without the suction function is approximately 6,782.

Only use intra-oral suction cannot inhibit and reduce the droplets number.

Droplets number decreased significantly when use intra-oral and extra-oral suction at the same time.



PART 02

# What is extraoral suction?



# Two suction units in clinic

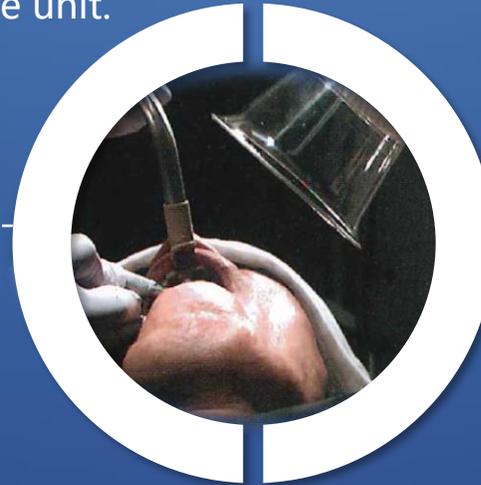
In clinic there are two types oral suction device: Intra-oral suction, Extra-oral suction

Intra-oral suction: Negative vacuum pressure suction device, the strong and weak suction for the dental chair, and movable suction device. (Dynamic DS50, DS0, DS30, DS3701 series)

Extra-oral suction: Dynamic dental extra-oral suction DS1000: With strong suction vacuum pressure and large flow rate, the aerosol between doctors and patients is sucked into the machine through the free arm, and it will discharge with a complete purification inside the unit.



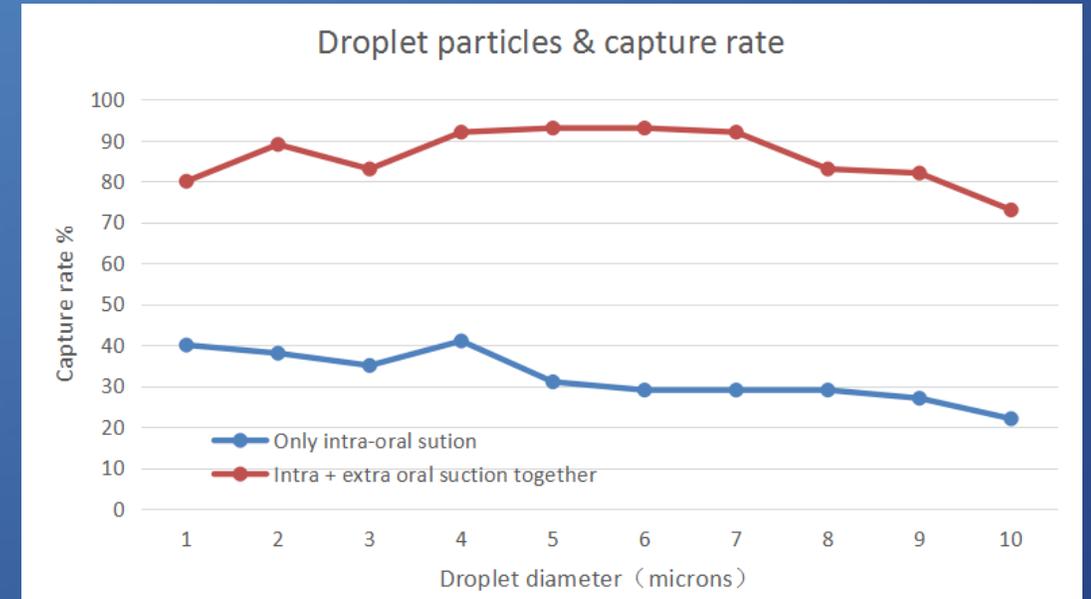
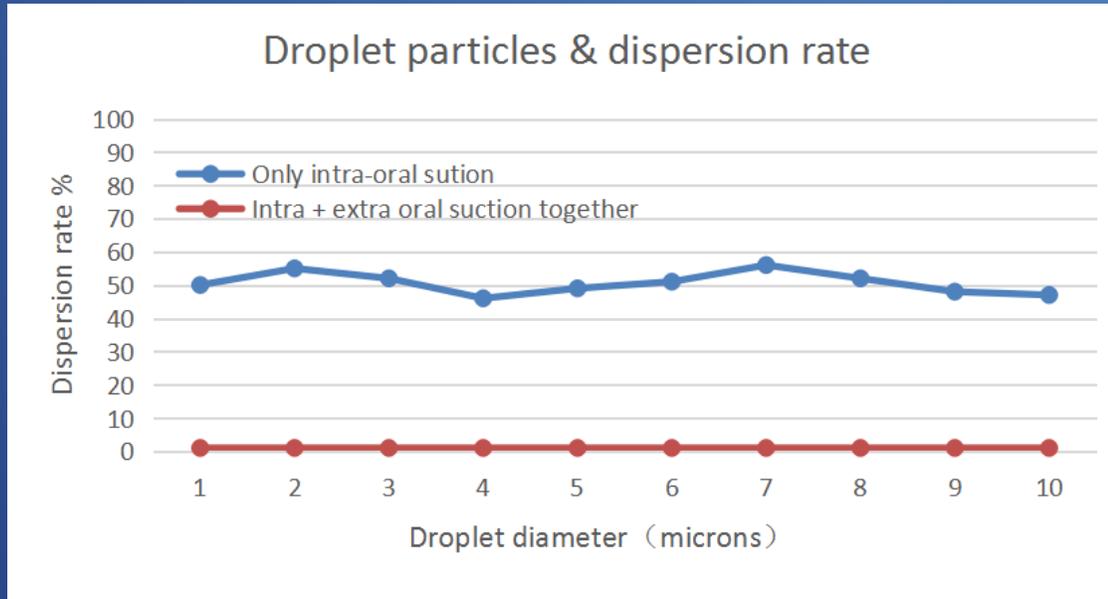
Intra-oral suction: It is mainly used to absorb water mist, saliva, blood, pus and so on. And to absorb the spatters generated in most treatments, and make the vision of the treatment site is clear.



Extra-oral suction: It is used to remove all water mist and splashes outside the mouth, to filter and disinfect, and to protect the environment and medical staff. Patients would be more comfortable.



# Combination of intra-oral suction & extra-oral suction



Dispersion rate = Droplets which are not caught / Total tracked particles number

Capture rate = Total absorbed particles number / Total tracked particles number

In the case of using intra-oral suction only, there will be 50% ~ 60% flying into the air, use intra-oral and extra-oral suction at the same time, particle adsorption droplets is close to 95%.

In terms of the capture rate of droplet particles, the capture rate of the intra-oral and extra-oral suction combination is 40%~70% higher than that of using intra-oral suction only.



PART 03

# **Working principle of Dynamic extraoral suction**



# Basic principle of extraoral suction



## 1 Suction

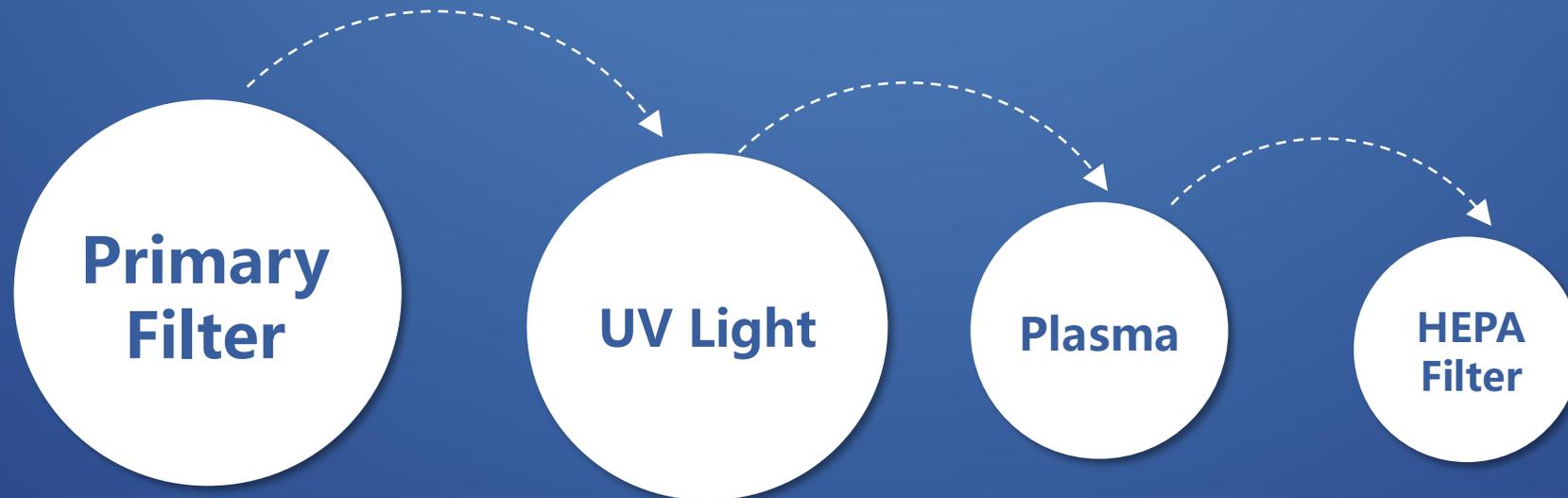
With strong suction vacuum pressure and large flow rate, the aerosol between doctors and patients is sucked into the machine through the free arm, and discharge after thoroughly purification.

## 2 Disinfection

The aerosol entering the machine is filtered through HEPA and then sterilized by ultraviolet rays, and then discharge after a large amount of plasma sterilization and purification.



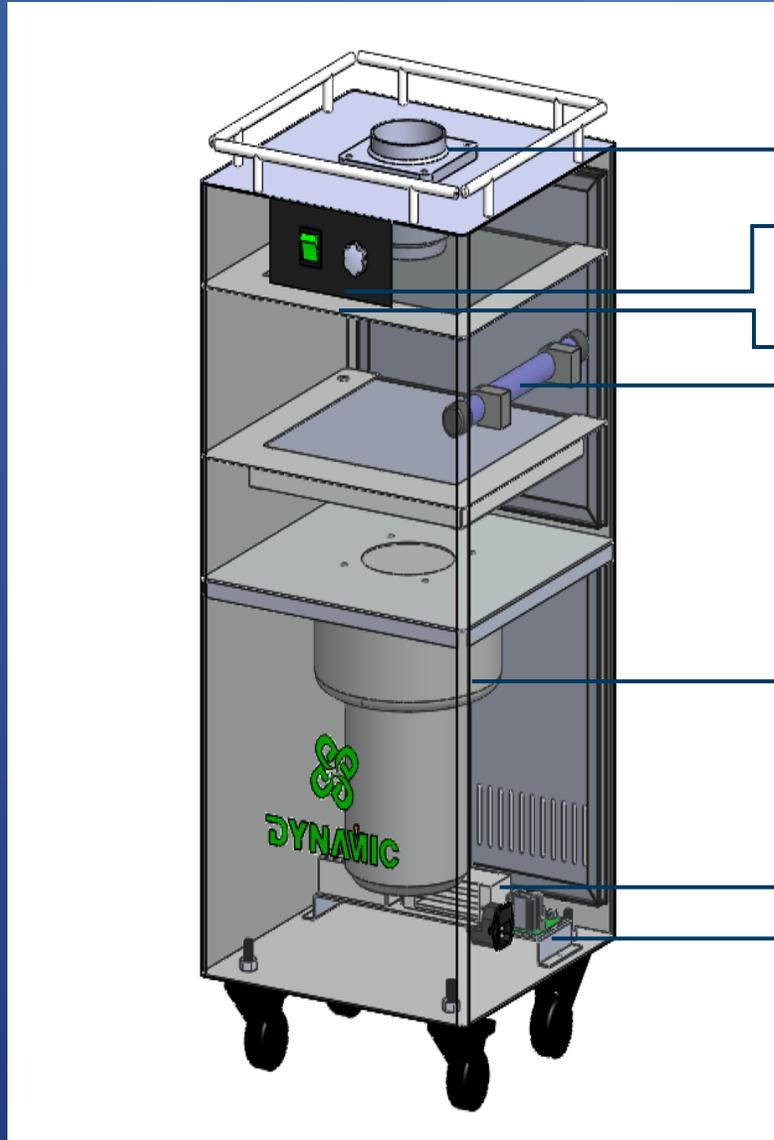
# 4 ways to ensure cleaning air



The built-in high-power blower ensures a 3M/s wind speed which ensures the maximum effectiveness of the plasma disinfection. Last large area HEPA filter makes sure the virus particles have nowhere to hide.



# DS1000 structure diagram



01

Free arm connector

02

Control panel

03

Primary filter

04

UV Light

05

Vaccum pump

06

Plasma generator

07

HEPA Filter





PART 04

# Specification and features



# Advantages & features



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1

Strong suction pump, large flow, high vacuum, long performance life.

2

Excellent heat dissipation performance, can work continuously for more than 4 hours.

3

Negative pressure could be regulated according to the clinical need by stepless adjusting knob.

4

It can truly achieve man-machine coexistence.

5

Low noise, noise level hardly increases when work with ultrasonic scaler, handpiece etc.



# Specification

Five segmental type free arm,  
more flexible and convenient  
operation

Suction hood is easy to  
disassemble and install, with its  
own filter, which can effectively  
prevent large particles from  
being inhaled into the machine.

Semi-open designed suction port,  
maximum area ensure the  
suction surface and prevent  
spray.





# Specification



## DS1000 Specification:

Name : Extra-oral suction

Model : DS1000

Voltage : AC220V 50Hz

Power : 1200VA

Noise :  $\leq 65$  dB

Pumping rate :  $\geq 3\text{m}^3/\text{Min}$

Max Vaccum : -20kpa

Amount of negative ions :  $\geq 100$  million/ $\text{m}^3$

Amount of positive ions :  $\geq 80$  million/ $\text{m}^3$

HEPA Grade:H13  $\geq 99.97$  0.3 $\mu\text{m}$

Dimension : 320\*320\*840mm

Net weight : 36kg



PART 05

# Daily maintenance and instructions



# Installation & Usage

## 1 Installation

Install the free arm and connect the power then can use normally.

## 2 Operation procedure

1. Move the machine to appropriate location and press on the brake at the bottom of wheel.
2. Plug in the power cord and switch on the power.
3. Pull the free arm to an appropriate position according to the demand, control the pressure through the knob on the control panel.
4. After use, turn off the power switch, pull back the free arm.





# Daily maintenance

Do not use the following detergent:

- Abstergent
- Alkaline detergent
- Diluent
- Decolorizer
- Alcohol
- Gasoline

Air outlet <once every month>

Use vacuum cleaner to remove dirt firstly, use soft cloth to wipe besmirch.

- Do not rub it with coarse cloth
- After cleaning, dry the machine before running

1. Stop operation and pull out the power plug, need maintenance

2. Put device into the carton, and store it in a dry place (Please don't lie flat or inverted)

3. HEPA filter, UV light replacement proposal is once every year, or, the pumping rate would be lower

4 We suggest to contact the agent/manufacturer for motor maintenance every 2 years



# Installation & Usage

## 1 Cleaning and disinfection for free arm

We suggest that use disposable transparent protective sleeve for the tube, use our QACs for internal cleaning and disinfection.

## 2 Can it replace the air disinfection machine?

We suggest not although it can work for long time, our company has professional air disinfection machine designed for the hospital or clinics.



# **DYNAMIC**

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**Thank You**