

# DuraMax.

## Extraoral Suction System

### Instruction for Use



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## INTENDED USE

DuraMax Extraoral Suction System is intended to remove aerosol, droplet, and dust. It is designed to improve air quality.



Before operating the system, please read this manual thoroughly, and retain it for future reference.

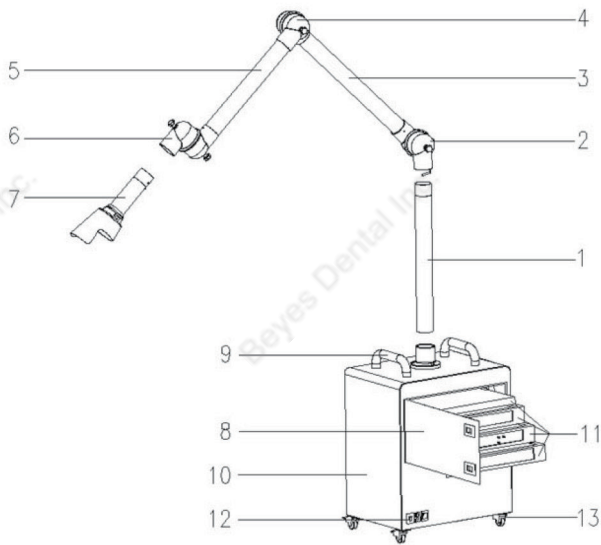
## 1. IMPORTANT SAFETY PRECAUTIONS

- DO NOT use the unit in an enclosed space where oxygen, flammable, explosive or toxic vapors are given off by oil base paint, paint thinner, some mothproofing substances, or in an area where flammable dust is present.
- DO NOT clean the unit or any parts with gasoline, paint thinner or other flammable substances. It may be damaged or may cause fire.
- DO NOT wash or reuse the filters
- DO NOT operate the unit without filters.
- This machine is not designed to filter water.
- DO NOT insert fingers or foreign objects into the intake or air outlet.
- Keep hair, loose clothing, fingers and all parts of body away from openings and moving parts.
- DO NOT block the intake and air outlet.
- DO NOT use the unit near or on hot objects, such as range or where it may be exposed to steam.
- Always hold the handles on the side of the unit when moving it. DO NOT move unit with the motor.
- Be careful not to tip over the unit when opening the front panel. If not, it may cause bodily harm.
- The batteries must be removed from the remote control before disposal, and the batteries must be disposed of safely.
- Use only a 110-volt outlet with grounding wire receptacle.
- DO NOT use the DuraMax Extraoral Suction System if the power cord or plug is damaged or the connection to the wall outlet is loose.
- When removing the power plug, always hold the plug and never pull by the cord.
- DO NOT handle plug or appliance with wet hands. Electrical shock or fire from short circuit may occur.
- Remove the power plug from the wall outlet before cleaning the unit and when not using the unit. Turn off all controls before unplugging.
- If the power cord is damaged, it must be replaced by the Beyes authorized service or similarly qualified person.
- To reduce the risk of electric shock, this equipment has a grounding type plug that has a third (grounding) pin. This plug will only fit into a grounding type power outlet. If the plug does not fit into the outlet, contact qualified personnel to install the proper outlet. DO NOT alter the plug in any way.
- DO NOT disassemble or modify this equipment. Unwarranted tampering can lead to fire, electric shock and unit malfunction.
- DO NOT sit or put weight on top of the unit.

## 2. HOW IT WORKS

The DuraMax Extraoral Suction System functions as an air cleaner by helping to remove airborne microorganisms and removing particulates from the aerosol, droplet, and air etc. The centrifugal fans of the unit draw air through the suction hood (Intake). Then it passes through the Primary Filter, secondary filter, HEPA Filter, activated carbon filter and the UV-C lamps. The purified air is then released through the outlet on the bottom of the unit.

## 3. DIAGRAM



1	Post #1	8	Filter compartment door
2	Joint #1	9	Joint #2
3	Post #2	10	Outer frame
4	Joint #2	11	Filters
5	Post #3	12	Power port
6	Joint #3	13	Wheels 1.25"
7	Suction hood		

## 4. SPECIFICATIONS

<b>Model</b>	DuraMax X1
<b>Voltage</b>	AC110V, 60Hz
<b>Power</b>	350W
<b>Speed options</b>	10
<b>Ultraviolet C (UV-C)</b>	254nm Spectrum, 2 pieces of 8W
<b>Maximum Motor Volume</b>	270 CFM
<b>Filtration</b>	Four layers (including 1 HEPA 0.3µm 99.97%)
<b>Noise Level</b>	≤55dB
<b>Head Diameter</b>	2.95 inches
<b>Arm Reach</b>	1.4 m
<b>Unit Weight</b>	48 lbs
<b>Shipping Weight</b>	51 lbs
<b>Shipping Dimension</b>	L20.5 x W16 x H23.25 inches (L52 x W41 x H59 cm)
<b>Unit Dimension</b>	L16.5 x W12 x H20 inches (L42 x W30.5 x H46 cm)
<b>Warranty</b>	30 months

## 5. INSTALLATION

1

Unit Box

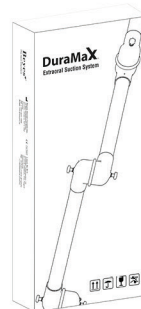


**Contents:**

- 1 x Main Body (including 1 x S1, S2, S3, S4 Filters)
- 1 x Remote Control
- 1 x S1 Filter
- 1 x Power Cord
- 1 x Manual

2

Arm Box

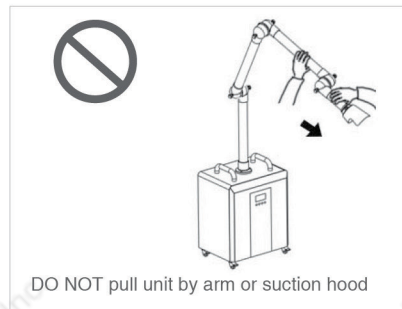
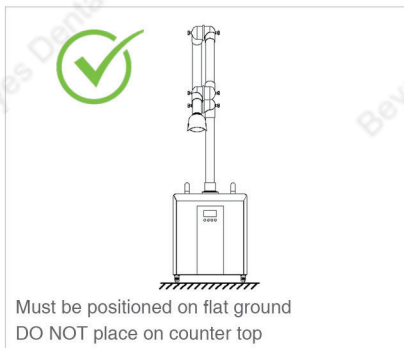
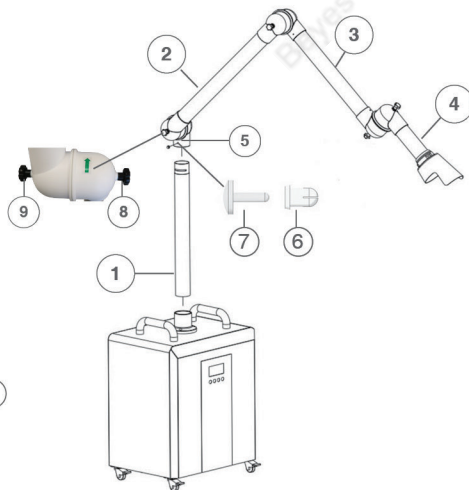


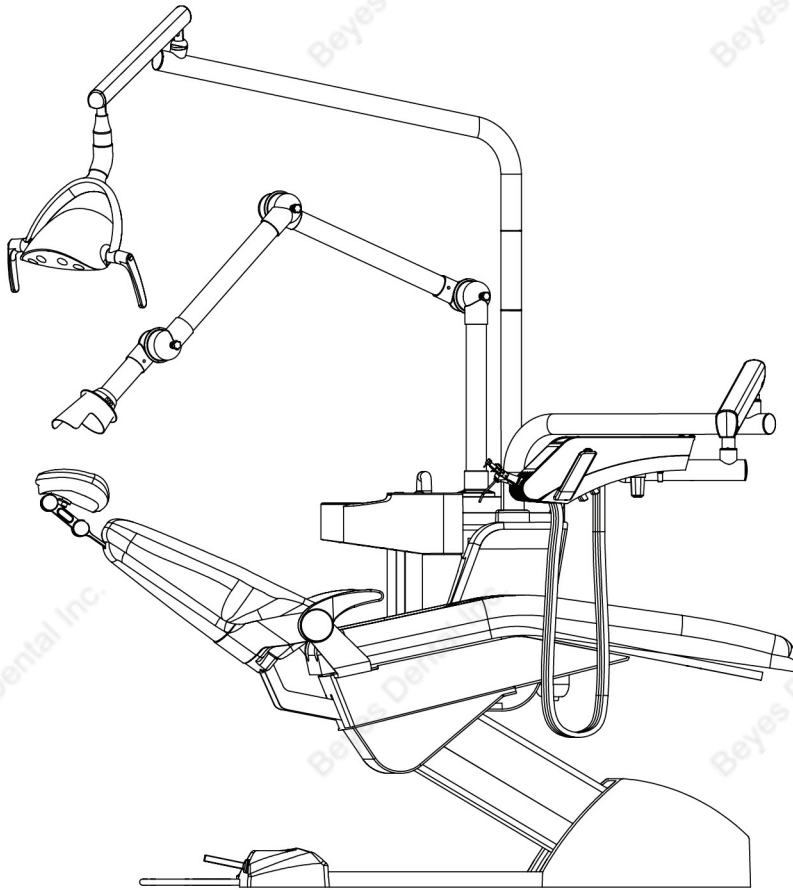
**Contents:**

- 1 x Post 1
- 1 x Main Arm
- 1 x Nylon Rivet
- 1 x Nylon Rivet Positioner

After unpacking, please check all components and accessories of the unit are complete.

1. Place main body of the unit on a flat and dry ground surface.
2. Insert post ① into the main body.
3. Insert arm ② into post ① with green arrow on joint ⑤ pointing towards the front of the unit and align arm ② open hole with post ① open hole
4. Insert Nylon Rivet positioner ⑥
5. Insert Nylon Rivet ⑦
6. Adjust arm ② to desired position and tighten joint knobs by holding stationary ⑧ and turning ⑨ clockwise to secure in place. **DO NOT** overtighten, this will restrict arm's range of motion.
7. Adjust arm ③ to desired position and repeat step 6 to secure in place.
8. Adjust arm ④ to desired position and repeat step 6 to secure in place. Connect power cord to the socket.





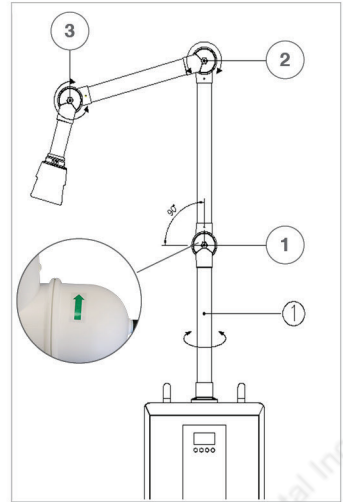
**WARNING:**

- When moving the chair up and down, DO NOT let the oral suction device touch the patient, operating light, chair, table, etc.
- Avoid using or placing the machine exposed to light sources and heat sources that may generate heat.
- DO NOT touch or impact with hard objects.
- DO NOT remove the joint cover of the device for use.
- DO NOT tilt the machine for use. Otherwise, it may cause the body to fall over and cause injuries to the body or furniture.
- When tilted, DO NOT move the machine, hold the hood or pull the arm.

## 6. OPERATION

### 6.1 Arm Movement

- Joint ① has limited range of motion. The mechanical arm should only be bent forward vertically in the direction of the arrow on joint ①
- Joint ② can be rotated vertically 360 degree
- Joint ③ can be rotated horizontally 360 degree
- If you feel any resistance in joint rotation, do not force further rotation.



### 6.2 Power Control Settings



- 10 levels of power suction adjustment
- Digitalized display screen
- Minimum level 1 setting is 20 CFM
- Maximum level 10 setting is 270 CFM
- Level 1-4 is air purification mode
- Level 5-10 is droplet and aerosols removal mode
- Adjust power setting base on personal preference

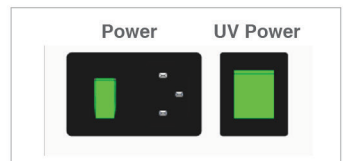
### 6.3 Suction Hood

1. Ensure no objects are close to the suction hood
2. The suction hood should be 10-15 cm or 3.9-5.9 inches away from the patient's mouth.
3. Ensure arm is stable and positioned toward desired direction

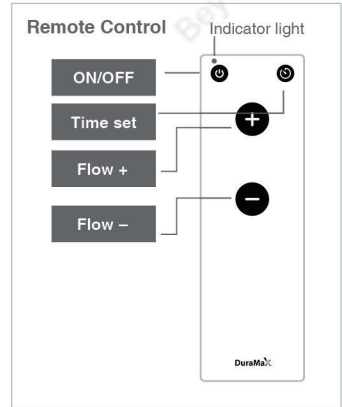
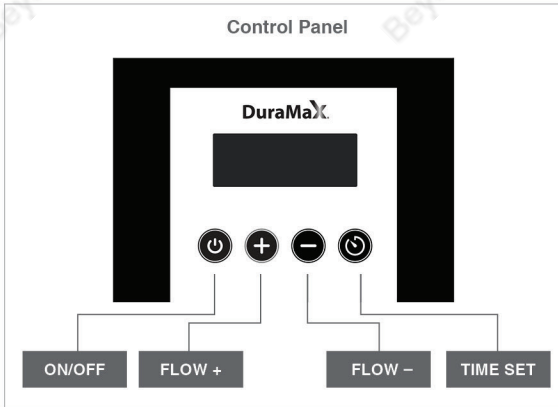
### 6.4 Control Panel & Remote Control

(2 AAA batteries not included)

1. Turn ON both power and UVC switches  
(They are located at back of the machine)
2. Press  on control panel or remote to start operation
3. Press  to increase time. (Maximum is 12 hours)







### • Remote Control Pairing

Press and hold the power button (power symbol with a vertical line) and plus button (+) at the same time for 5 seconds or until the indicator light above the power button flashes.

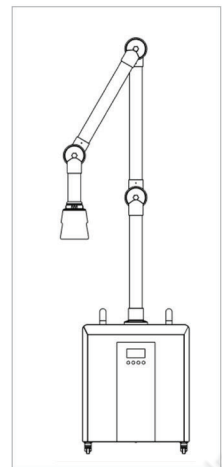
### • Set up timer

1. Make sure the unit is ON
2. Press (power symbol with a vertical line) to set the timer, the display will show H00.
3. Press (power symbol with a vertical line) to increase time. (Maximum is 12 hours)

**Note:** If the display shows H00, mean that the machine is not in timer mode

## 6.5 Machine Storage Position

If the machine is not in use, it should be stored positioned as Diagram.



## 7. CLEANING AND DISINFECTION

### 7.1 Suction hood

Always disinfect the suction hood between patients by wiping it completely with an appropriate disinfecting solution such as Cavicide or a similar quaternary ammonium compound product (containing 20% alcohol or less), and follow the manufacturer's instructions.

**DO NOT AUTOCLAVE.**

### 7.2 Touch surfaces and transfer surfaces

Use barriers (covers) on all touch surfaces and transfer surfaces. Replace barriers between patients. Use barriers made from waterproof material. Use care to prevent cross-contamination when removing a contaminated barrier cover. Alternatively, use surface disinfectants on touch and transfer surfaces between patients only, and once at the end of each clinic day when it is evident that the barriers have been compromised. Always follow the label instructions on surface disinfectant products, including any specified kill-time.

## 8. FILTER REPLACEMENT

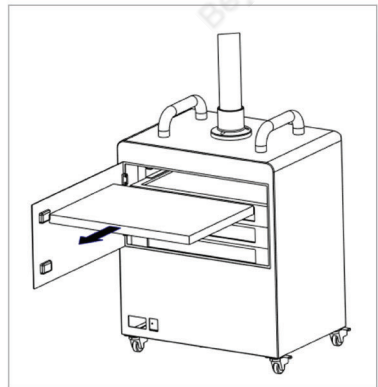
### 8.1 S1 Primary Filter (Replace every month)

- Wear personal protective equipment
- Unplug power cord

1. Open filter compartment door
2. Remove the used filter
3. Place new filter into the same slot
4. Close filter compartment door



Treat the used filter as medical waste and dispose it according to local regulation



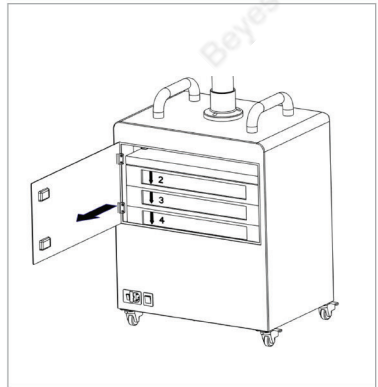
## 8.2 S2 Secondary Filter (Replace every 3 month)

- Wear personal protective equipment
- Unplug power cord

1. Open filter compartment door
2. Remove the used filter Place new filter into the same slot  
(ARROW FACE DOWNWARD ↓)
3. Close filter compartment door



Treat the used filter as medical waste and dispose it according to local regulation



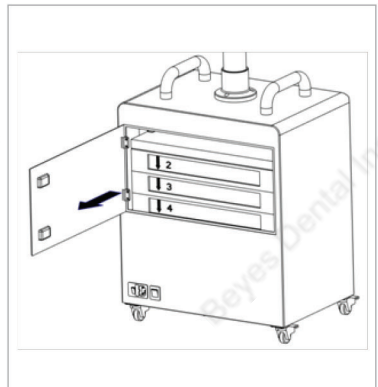
## 8.3 S3 HEPA Filter (Replace every 3 month)

- Wear personal protective equipment
- Unplug power cord

1. Open filter compartment door
2. Remove the used filter
3. Place new filter into the same slot  
(ARROW FACE DOWNWARD ↓)
4. Close filter compartment door



Treat the used filter as medical waste and dispose it according to local regulation



## 8.4 S4 Activated Carbon Filter

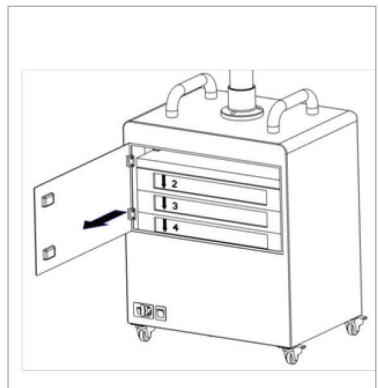
(Replace every 6 month)

- Wear personal protective equipment
- Unplug power cord

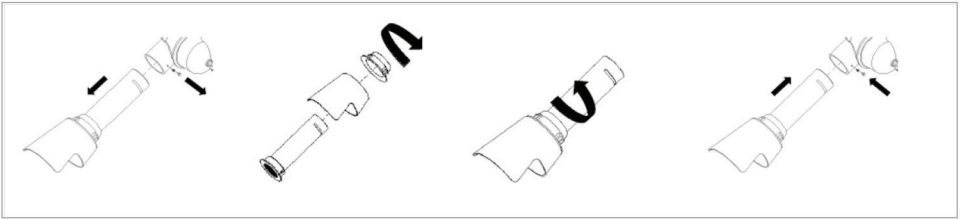
1. Open filter compartment door
2. Remove the used filter
3. Place new filter into the same slot  
(ARROW FACE DOWNWARD ↓)
4. Close filter compartment door



Treat the used filter as medical waste and dispose it according to local regulation



## 8.5 Suction Hood Replacement



1. Pull to remove nylon rivets from #3 joint and pull out the suction hood section
2. Loosen the nut from transparent suction hood in the direction of the arrow and remove it
3. Place the new transparent suction hood and lock in the direction of the arrow
4. Insert the suction hood section into #3 joint and fix it with nylon rivets

## 8.6 Fuse Replacement

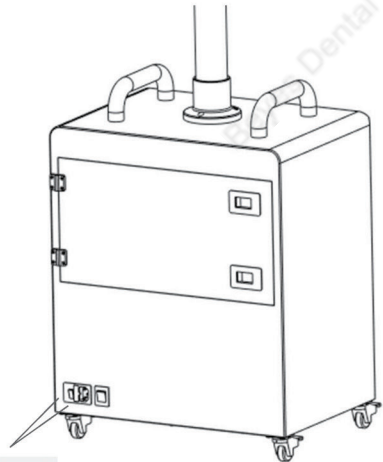
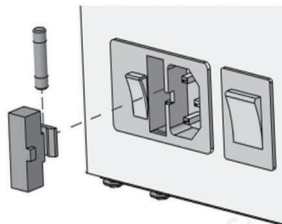
- Wear personal protective equipment
- Unplug power cord

1. Use screw driver to remove the fuse socket
  2. Place new fuse into the socket (20° Φ 5 10A)
- Use a fuse with proper capacity



### WARNING:

Never use a wire in place of a fuse.  
Doing this may lead to malfunction or fire.



## 9. Beyes Limited Warranty Statement

### 9.1 SCOPE OF WARRANTY

BEYES Dental Canada Inc. warrants to the original retail purchaser that it will be at BEYES option to repair or replace components of the dental products manufactured by BEYES (except for components not warranted under 'Exclusions') that are defective in material or workmanship under normal use and service. BEYES' obligation under this limited warranty is limited to the repair or replacement of the applicable components. This limited warranty shall only apply to defects that are reported to BEYES within the applicable warranty period and which, upon examination by Beyes, prove to be defective. This warranty extends only to the first retail purchaser of a product and is not transferable or assignable. Replacement components or products may be used and/or refurbished components or products, provided they are of like quality and specifications as new components or products.

### 9.2 APPLICABLE WARRANTY PERIOD

The applicable warranty period, measured from the date of invoice to the original user, shall be as follows

DuraMax Extraoral Suction Systems are warranted for a period of 30 months

### 9.3 EXCLUSIONS

This limited warranty does not cover and BEYES shall not be liable for the following;

- (1) Defects, damage or other conditions caused, in whole or in part, by misuse, abuse, negligence, alteration, accident, freight damage, negligent storage, tampering or failure to seek and obtain repair or replacement in a timely manner;
- (2) Products which are not installed, used, and properly cleaned and maintained as required or recommended in the BEYES 'Installation' and/or 'Installation/Operation Manual' for the applicable product, including the specified structural and operational environment conditions and electrical power requirements;
- (3) Products considered to be of a consumable or sterile nature;
- (4) Accessories or parts not manufactured by BEYES;
- (5) Charges by anyone for adjustments, repairs, replacement parts, installation or other work performed upon or in connection with such products which are not expressly authorized in writing in advance by BEYES;

- (6) Costs and expenses of routine maintenance and cleaning;
- (7) Representations and warranties made by any person or entity other than BEYES;
- (8) Matching of color, grain or texture except to commercially acceptable standards;
- (9) Changes in color caused by natural or artificial light;
- (10) Custom manufactured products;
- (11) Alterations or modifications to the product by any person or entity other than BEYES;
- (12) Products that would otherwise be covered under Sections 1 and 2 of this limited warranty, but are acquired: (i) from a person or entity that is not BEYES or one of its authorized dealers; or (ii) from a BEYES dealer that is not authorized to sell the product at issue in the geographic territory where the purchaser is located, or is not authorized to sell the product at issue within the medical, animal health or dental market, as the case may be, in which purchaser intends to use the product.

#### **9.4 EXCLUSIVE REMEDY; CONSEQUENTIAL DAMAGES DISCLAIMER**

Beyes' obligation under this limited warranty is the repair or replacement of defective parts. Beyes shall not be liable for and hereby disclaims any direct, special, indirect, incidental, exemplary or consequential damages or delays, including, but not limited to, damages for loss of profits or income, loss of use, downtime, cover and employee or independent contractor wages, payments and benefits.

#### **5. WARRANTY DISCLAIMER**

This limited warranty is beyes only warranty and is in lieu of all other warranties, express or implied. Beyes makes no implied warranties of any kind including any implied warranties of merchantability or fitness for a particular purpose. This warranty is limited to the repair or replacement of defective parts.

#### **6. STATUE OF LIMITATIONS**

No actions may be brought against beyes for breach of this limited warranty, or implied warranty, if any, or for any other claims arising out of or relating to the products, more than ninety (90) days following expiration of the limited warranty period.

## 10. Electro Magnetic Compatibility



### CAUTION:

- DuraMax Extraoral Suction System meets the requirements of the YY0505 standard.
- Users should install and utilize base on the electromagnetic compatibility information of the document.
- Portable and mobile radio frequency communication equipment may affect the features of the DuraMax Extraoral Suction System, avoiding disturbing by the strong electromagnetic such as mobile phone or induction cooker.
- Please check the attachment refer to the guide and manufacturer's statement.



### WARNING:

- DuraMax Extraoral Suction System is not stackable.
- Apart from the inner parts sold by DuraMax Extraoral Suction System manufacturer, the parts and wires beyond the standard requirements may affect the radio frequency raise up or immunity drops.

The statement of the Guide & Manufacturer-Electromagnetic Launch		
DuraMax Extraoral Suction System is designed to be used in the below electromagnetic environmental requirements, users should guarantee that it can be used in this electromagnetic environment.		
Lauch Test	Comformance	Electromagnetic Environment--Guide
GB4824RF Lauch	1 Group	DuraMax Extraoral Suction System utilizes the RF energy for its inner functions only. Therefore, its RF transmit is very low, and it is low possibility to affect other electronic devices surrounding.
GB 4824RF Lauch	B Class	DuraMax Extraoral Suction System is suitable for utilizing in all facilities including household facilities and other directly connected to the residential public low-voltage power supply network.
GB 17625.1 Harmonic Lauch	A Class	
Voltage Fluctuation /Scintillation Launch GB 17625.2	Qualified	

The statement of the Guide & Manufacturer— Electromagnetic Immunity

DuraMax Extraoral Suction System expected that it should be used in the below electromagnetic environmental requirements, the buyers or users should guarantee that it can be used in this electromagnetic environment.

Electromagnetic Immunity Test	IEC6061 Test Level	Test Level Comformance	Electromagnetic Environment— Guide
Electrostatic Lauch (ESD)GB/T 17626.2	±6 kV Contact Discharge ±8 kV Air Discharge	±6 kVContact Discharge ±8 kV Air Discharge	The floor should be wood, concrete, or tile, if the floor is covered by synthetic materials, the relative humidity should be at least 30%.
Electrical Fast Transient GB/T 17626.4	±2 kV to power wire	±2 kV to power wire	The network power should be the utilized quality under the typical commercial or hospital environment.
Surge GB/T 17626.5	±1 kV wire to wire ±2 kV ground to ground	±1 kV wire to wire ±2 kV ground to ground	The network power should be the utilized quality under the typical commercial or hospital environment.
<ul style="list-style-type: none"> <li>• Voltage sag on power input line</li> <li>• Short interruptions and voltage changes</li> </ul> GB/T 17626. 11	< 5% $U_t$ , lasting 0.5 Period (At $U_t$ >95% Sag) 40 % $U_t$ , lasting 5 Cycles (At $U_t$ , 60% Sag) 70% $U_t$ , lasting 25 Cycles (At $U_t$ , 30% Sag) < 5% $U_t$ , lasting 5s (At $U_t$ , >95% Sag)	< 5% $U_t$ , lasting 0.5 Cycles (At $U_t$ , >95% Sag) 40 % $U_t$ , lasting 5 cycles (At $U_t$ , 60% Sag) 70% $U_t$ , lasting 25 cycles (At $U_t$ , 30% Sag) < 5% $U_t$ , lasting 5s (At $U_t$ , >95% Sag)	The network power should be the utilized quality under the typical commercial or hospital environment. If users need to operate continuously during the period of power-off, and we will recommend DuraMax Extraoral Suction System takes different measures to keep supplying power.



Power Frequency Magnetic Field (50/60 Hz) GB/T 17626.8	3 A/m	3 A/m	Power frequency magnetic field should have PFMF features in a typical place of the typical commercial or hospital environment.
<b>Note:</b> Ut is the AC network voltage before the test applied			
The statement of the Guide & Manufacturer— Electromagnetic Immunity			
DuraMax Extraoral Suction System expected that it should be used in the below electromagnetic environmental requirements, the buyers or users should guarantee that it can be used in this electromagnetic environment.			
Electro-magnetic Immunity Test	IEC6061 Test Level	Test Level Conformance	Electromagnetic Environment— Guide
Radio Frequency Conduction GB/T 17626.2  Radio Frequency Radiation GB/T 17626.3	3V (Effective Data) 150kHz ~80MHz  3V/m 80MHz ~5GHz	3V(Effective Data)  3V/m	Portable and mobile RF communications equipment should not be used closer to any part of DuraMax Extraoral Suction System than the recommended isolation distance, including cables. This distance is calculated by a formula corresponding to the frequency of the transmitter. Recommended isolation distance  $d = 1.2 \sqrt{p}$ $d = 1.2 \sqrt{p}$ 80 MHz~800 MHz $d = 2.3 \sqrt{p}$ 800 MHz~2.5 GHz  formula: P—based on the transmitter's maximum rated output power provided by the transmitter manufacturer, in watts (W); d—Recommended isolation distance in meters (m). The field strength of the fixed RF transmitter is determined by surveying the electromagnetic field c, and in each frequency range d should be lower than the compliance level. Interference may occur near the equipment marked with the following symbols

Note 1: At 80MHz and 800MHz frequencies, the higher frequency band formula is used.

Note 2: These guidelines may not be suitable for all situations. Electromagnetic propagation is affected by absorption and reflection from buildings, objects and the human body.

The field strengths of fixed transmitters, such as: base stations for wireless (cellular/cordless) phones and terrestrial mobile radios, amateur radios, AM and FM radio broadcasts, and television broadcasts, cannot be accurately predicted theoretically. To assess the electromagnetic environment of fixed RF transmitters, surveys of electromagnetic sites should be considered. If the measured field strength of DuraMax Extraoral Suction System is higher than the applicable RF compliance level above, DuraMax Extraoral Suction System should be observed to verify that it can operate normally. If abnormal performance is observed, supplementary measures may be necessary, such as reorienting or repositioning DuraMax Extraoral Suction System. In the entire frequency range of 150kHz to 80MHz, the field strength should be lower than 3V/m.

DuraMax Extraoral Suction System are intended for use in electromagnetic environments where RF radiation disturbances are controlled. Depending on the maximum rated output power of the communication device, the purchaser or user can prevent electromagnetic interference by maintaining the minimum distance between portable and mobile RF communication devices (transmitters) and DuraMax Extraoral Suction System as recommended below

Transmitter's rated maximum output power	Isolation distance corresponding to different frequencies of the transmitter/m		
	150 KHz~80 MHz $d = 1.2 \sqrt{p}$	80 MHz~800 MHz $d = 1.2 \sqrt{p}$	80 MHz~2.5 GHz $d = 1.2 \sqrt{p}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For the maximum rated output power of the transmitter not listed in the table above, the recommended isolation distance  $d$  is in meters (m), which can be determined by the formula in the corresponding transmitter frequency column, where  $P$  is the emission provided by the transmitter manufacturer Maximum rated output power of the unit, in watts (W).

Note 1: At 80MHz and 800MHz frequency points, the formula of the higher frequency band is used.

Note 2: These guidelines may not be suitable for all situations. Electromagnetic propagation is affected by absorption and reflection from buildings, objects and people.





















# DuraMax<sup>®</sup>

**Beyes**<sup>®</sup>  
*The Next Standard*

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