BencoDental

e·on®

Capsule Mixer

USER MANUAL

CONTENTS

PREFACE

Thank you for your purchase of the Benco Dental **e-on Capsule Mixer.** Please familiarize yourself with the contents of this manual to ensure proper and safe operation and functioning of this product.

INTENDED USE

The **e-on Capsule Mixer** is intended for the mixing of dental material capsules. It is compatible with all capsule products on the market.

DISCLAIMER

This device is not user serviceable, and any modifications, maintenance, or repairs should not be performed.

Failure to comply with the statements provided in the disclaimer will result in a void of the manufacturer warranty.

The manufacturer shall not assume any responsibility for any malfunction, damage, or accident resulting in bodily injury caused by:

1. Improper removal, modification, maintenance, or repair of the product conducted by unauthorized personnel
2. Use of this product in conjunction with other regulated products
3. Improper removal, modification, maintenance, or repair of the product with components not supplied by the manufacturer
4. Improper operation that is not compliant with the instructions in this manual
5. Inappropriate modifications to the power supply, installation environment, or any other safety-regulated operating conditions as specified in this manual
6. Natural disasters, environmental causes, or acts of God

SAFETY PRECAUTIONS

Please follow the instructions in this manual for correct and safe operation of the device. Pay special attention to the following warning signs beside the operation descriptions where applicable.

DANGER:
This message appears where improper operation may cause severe injury to the human body if instructions are not followed correctly.

WARNING:
This message appears where improper operation may cause serious damage or defect to other objects or the device itself if instructions are not followed correctly.

CAUTION:
This message appears where improper operation may cause slight injury to the human body if instructions are not followed correctly.

IMPORTANT:
This message appears where improper operation may cause slight damage or defect to other objects or the device itself if instructions are not followed correctly.

EXPLANATION OF GRAPHICAL SYMBOLS

ISO 7000-1641: Follow operating instructions or consult instructions for use.

Indicates the polarity of the DC power input.

IEC 60417-5009: STAND-BY.

PRODUCT CLEANING

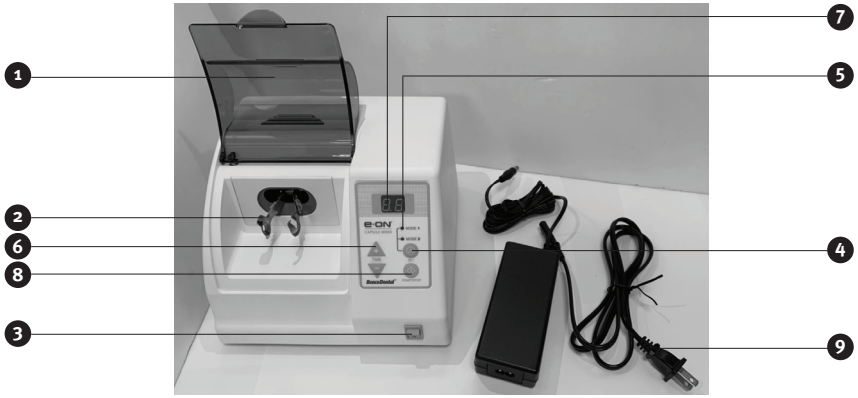
IMPORTANT:
Never use a solvent or volatile oil, or immerse for cleaning.

WARNING:
Do not modify this device. It is not user serviceable and may be damaged as a result.

IMPORTANT:
Do not use other adapters with this unit. It is intended to be used only with the adapter included.

CAUTION:
Use only with 120V, 60Hz electrical systems in North America. Do not modify the adapter or plug in any way.

PARTS & ACCESSORIES

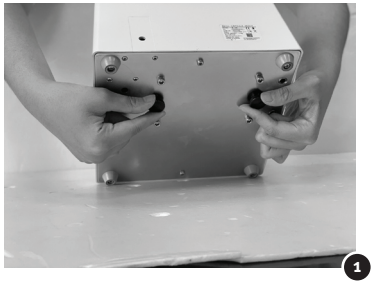


1. **Protective Shield:**
   The safety switch will be activated when the Protective Shield is not closed. The unit will automatically cease operation when the protective shield is opened.
2. **Holding Arms:**
   Where to place the capsule.
3. **POWER Button:**
   The Mode indicator & Time Display indicator will start to blink (showing display of “10”) when the power button is turned ON.
4. **Mode SET Button:**
   Press Mode button to select the desired setting.
5. **Mode Indicator:**
   Displays the mode that is currently selected.
6. **AV Timer Setting Button:**
   Use to set the mixing time. Adjustable from 1-30 seconds.
7. **Time Display Indicator:**
   Displays the selected mixing time. The timer will blink during operation as it counts down.
8. **START/STOP Button:**
   Press the button to start operation. Press again to stop the operation at anytime.
9. **Adapter:**
   100V-240V 50/60Hz 2A

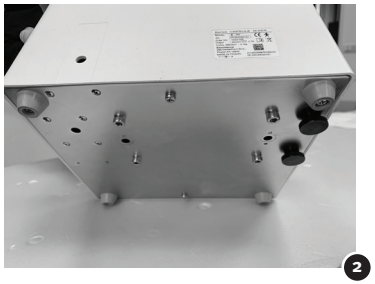
IMPORTANT TIPS BEFORE OPERATION

To ensure safe transportation, the motors inside your unit are secured with two bolts that must be removed prior to operation. Refer to the instructions below to prepare the unit for use.

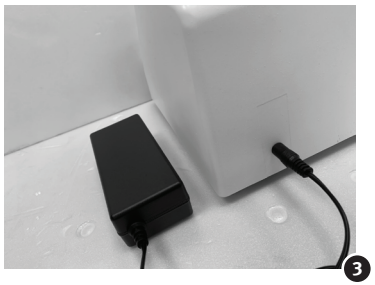
1. Unscrew the two bolts, which are located at the bottom of the unit, as shown in diagram 1. Carefully balance the unit while removing the bolts.
   NOTE: Remove both bolts simultaneously. Unscrewing only one bolt may make it more difficult to remove the other.


1

2. Attach the two bolts at the locations shown in diagram 2 for safekeeping should you need to transport the unit in the future. Remember to re-attach them in the locations shown in diagram 1 prior to shipping or transporting the unit.


2

3. Insert the L-shaped plug into the unit’s power socket, then connect the power plug to the adapter. Ensure the power plug is connected securely as shown in diagram 3.


3

OPERATION

1. After turning the unit on, the mode and time indicators will start blinking. The display should indicate an initial setting of 10 seconds.

2. Depending on the characteristics of different capsules, the time required for mixing may vary slightly. Please refer to the selected capsule's instructions for details.

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- The mixing time can be reset by the user during operation between 1-30 seconds. Two separate settings may be stored in the unit's memory for added convenience.
- Because recommended mixing times vary, please review the instructions included with each capsule before mixing.

1) Ensure that the protective shield is securely closed.
2) Press the SET button to select the desired mode.
3) Press ▲ / ▼ to change the mixing time in the selected mode. Pressing ▲ or ▼ adds or reduces the mixing time by one second.
4) Press the SET button to confirm. The time indicator will stop blinking.

For the Mode 1 and Mode 2 time setting, please see the steps below.

1) Press SET button to choose MODE 1 or MODE 2. The green light will indicate the designated mode.
2) Press ▲ or ▼ TIME button to increase or decrease the number of seconds showing on the display. The number will be flashing.
3) Press SET button again to confirm the setting. The number will stop flashing.
4) You may repeat this process again from Step 1 to Step 3 for other modes or to change the current time setting.

3. Open the protective shield, and place the capsule into the holding arms as shown in diagram 5.

4. Securely close the protective glass and press the START/STOP button to begin mixing operation. The timer display will count down as mixing proceeds.

- NOTE: Unit will not operate if the protective shield is not securely shut. The time indicator will display "OF" as an alert.


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5. After mixing is complete, open the protective shield and remove the capsule from the holding arms as shown in diagram 6.


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MAINTENANCE

Do not operate the unit unless a capsule is in place. Doing so may cause the unit to malfunction. Any damage due to improper use is not covered under warranty. Avoid locating this unit in direct sun light. Also, DO NOT use this unit in a dusty environment. In the event that liquid inside a capsule escapes inside the mixing chamber, immediately wipe clean to prevent possible damage.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
Unit does not respond to START/ STOP button	The power adapter connections may be loose or unplugged	Ensure the power adapter is properly connected to unit and wall socket
	The L-shaped power plug might be loose	Ensure the L-shaped plug is connected securely
	The protective shield is open	Ensure the protective shield is firmly shut
The unit moves during operation	The unit may not be level or placed on an even surface	Ensure the unit is level. If placed on an uneven surface, relocate the unit.

WARRANTY & REPAIR

Benco Dental warrants this product for one (1) year from date of purchase. If you discover your product is defective within the specified period, contact Benco Dental immediately.

SPECIFICATIONS

Model	e-on Capsule Mixer
Machine dimensions	210(L) x 200(W) x 150(H) mm
Adapter dimensions	60(L) x 120(W) x 40(H) mm
Machine weight	3.1 kg (adapter included)
Adapter power input	AC100~240V, 50/60H z, 2A
Adapter power output	DC24V, 2.7A
System operational conditions	Temperature: 77°F~9 5°F (25°C to 35°C) Humidity: 15% to 95% @40 °C, non-condensing Atmospheric Pressure: 700-1060 hpa
System storage conditions	Temperature : -4°F~149°F (-20°C to 65°C) Humidity : 15% to 95% @40 °C, non-condensing Atmospheric Pressure: 700-1060 hpa
System transportation conditions	Temperature: -4°F~149°F (-20°C to 65°C) Humidity: 15% to 95% @40 °C, non-condensing Atmospheric Pressure: 700-1060 hpa

EMC TABLES

GUIDANCE AND MANUFACTURER'S DECLARATION - ELECTROMAGNETIC EMISSIONS

The model e-on series is intended for use in the electromagnetic environment specified below.
The customer or the user of the model should ensure that it is used in such an environment.

EMISSIONS TEST	COMPLIANCE	ELECTROMAGNETIC ENVIRONMENT - GUIDANCE
RF Emissions CISPR 11	Group 1	The model e-on series uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF Emissions CISPR 11	Class B	The model e-on series is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings for domestic purposes.
Harmonic Emissions IEC 61000-3-2	Class A	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Not Applicable	

GUIDANCE AND MANUFACTURER'S DECLARATION - ELECTROMAGNETIC IMMUNITY

The model e-on series is intended for use in the electromagnetic environment specified below.
The customer or the user of the model e-on series should ensure that it is used in such an environment.

IMMUNITY TEST	IEC 60601 TEST LEVEL	COMPLIANCE LEVEL	ELECTROMAGNETIC ENVIRONMENT - GUIDANCE
Electrostatic discharge (ESD) IEC 61000-4-2	± 6 kV contact ± 8 kV air	± 6 kV contact ± 8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%
Electrostatic fast transient/burst IEC 61000-4-4	± 2 kV for power supply lines ± 1 kV for input/output lines	± 2 kV for power supply lines ± 1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-4	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	Mains power quality should be that of a typical commercial or hospital environment.
Interruptions and voltage variations on power supply input lines IEC 61000-4-11	‹5% *UT* (›95% dip in *UT*) for 0,5 cycle 40% *UT* (›60% dip in *UT*) for 5 cycles 70% *UT* (›30% dip in *UT*) for 25 cycles 5% *UT* (›95% dip in *UT*) for 5 sec	‹5% *UT* (›95% dip in *UT*) for 0,5 cycle 40% *UT* (›60% dip in *UT*) for 5 cycles 70% *UT* (›30% dip in *UT*) for 25 cycles 5% *UT* (›95% dip in *UT*) for 5 sec	Mains power quality should be that of a typical commercial or hospital environment. If the user of the model e-on ſerieſ requires continued operation during power mains interruptions, it is recommended that the model e-on ſerieſ be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment

GUIDANCE AND MANUFACTURER'S DECLARATION - ELECTROMAGNETIC IMMUNITY

The model e-on SERIES is intended for use in the electromagnetic environment specified below.
The customer or the user of the model e-on series should ensure that it is used in such an environment.

IMMUNITY TEST	IEC 60601 TEST LEVEL	COMPLIANCE LEVEL	ELECTROMAGNETIC ENVIRONMENT - GUIDANCE
Conducted RF IEC 61000-4-6	3 V/m 150 kHz to 80 MHz	3 V/m	Portable and mobile RF communications equipment should be used no closer to any part of the model e-on series, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. **Recommended separation distance** $d = 1,2\sqrt{P}$
Radiated RF IEC 61000-4-3	3 V/m 80 kHz to 2,5 GHz	3 A/m	$d = 1,2\sqrt{P}$ 80 MHz to 800 MHz $d = 2,3\sqrt{P}$ 80 MHz to 800 MHz Where *P* is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and *d* is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, [a] should be less than the compliance level in each frequency range.[b] Interference may occur in the vicinity of equipment marked with the following symbol: 

NOTE I At 80 MHz and 800 MHz, the higher frequency range applies.
NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

[a] Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the model e-on series is used exceeds the applicable RF compliance level above , the mode e-on series should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the model e-on SERIES.
[b] Over the frequency range 150 kHz to 80 MHz, field strengths should be less than V/m.

RECOMMENDED SEPARATION DISTANCES BETWEEN PORTABLE AND MOBILE RF COMMUNICATIONS EQUIPMENT AND THE MODEL E-ON SERIES

The model e-on series is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the model e-on series can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the model e-on series as recommended below, according to the maximum output power of the communications equipment.

RATED MAXIMUM OUTPUT POWER OF TRANSMITTER W	SEPARATION DISTANCE ACCORDING TO FREQUENCY OF TRANSMITTER m		
	150 KHZ TO 80 MHZ $d = 1,2\sqrt{P}$	80 MHZ TO 800 MHZ $d = 1,2\sqrt{P}$	800 MHZ TO 2,5 GHZ $d = 2,3\sqrt{P}$
0,01	0,12	0,12	0,21
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 transmitters rated at a maximum output power not listed above, the recommended separation distance in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.
NOTE I At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.
NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

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