

Lietuvos sveikatos mokslų universiteto ligoninė Kauno klinikos

**DĖL KARŠTOS GUTAPERČOS APARATO PIRKIMO**

2021-02-22 Nr. MAR-2021/01/02-01

Vilnius

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Šiuo pasiūlymu patvirtiname, kad sutinkame su visomis pirkimo sąlygomis, nustatytomis kvietime dalyvauti neskelbiamoje apklausoje.

Mes siūlome:

Eil. Nr.	Prekių, paslaugų, darbų pavadinimas [jei detalė, nurodykite jos kodą]	Mato vnt.	Kiekis	Kaina 1 vnt., EUR be PVM	Kaina 1 vnt., EUR su PVM	Suma, EUR be PVM	Suma, EUR įskaitant PVM
1.	Karštos gutaperčos aparatas Endodontic Obturation System EQ-V (Meta, P.Korėja)	Vnt.	1	1.238,843	1.499,00	1.238,843	1.499,00

**Bendra pasiūlymo kaina su PVM: 1.499,00 Eur** (Vienas tūkstantis keturi šimtai devyniasdešimt devyni Eurai ir 00 centų) įskaitant 21% PVM.

Pagarbiai,  
Vadybininkas  
Artūras Kiseliovas

Tel. 8 698 18 984

[www.mardentas.lt](http://www.mardentas.lt)

**Karštos gutaperčos aparato techninė specifikacija (kiekis 1 vnt.)**

<b>Eil. Nr.</b>	<b>Parametrai (specifikacija)</b>	<b>Reikalaujamos parametų reikšmės</b>	<b>Siūlomos parametų reikšmės</b>
1.	Prietaiso paskirtis	<p>1. Belaidė užpildymo sistema, skirta kanalams pildyti šiltuoju vertikaliuoju būdu.</p> <p>2. Sistema susideda iš antgalių, kurie naudojami šaknų kanalų sistemai pildyti vertikalo kondensavimo (kondensavimo) ir grįžtamojo pildymo (tėkmės) technikoms.</p> <p>Kondensavimo antgalis skirtas elektriniams šildomiems kondensatoriams (EHP) kaitinti, kad jie kaitintų ir minkštintų gutaperčos pagrindinius kaisčius. Šis antgalis skirtas atsako į temperatūrą galiukui (TRT) kaitinti, kuriuo kaitinamas dantis pulpos gyvybingumui nustatyti.</p>	<p>1. Belaidė užpildymo sistema, skirta kanalams pildyti šiltuoju vertikaliuoju būdu.</p> <p>2. Sistema susideda iš antgalių, kurie naudojami šaknų kanalų sistemai pildyti vertikalo kondensavimo (kondensavimo) ir grįžtamojo pildymo (tėkmės) technikoms.</p> <p>Kondensavimo antgalis skirtas elektriniams šildomiems kondensatoriams (EHP) kaitinti, kad jie kaitintų ir minkštintų gutaperčos pagrindinius kaisčius. Šis antgalis skirtas atsako į temperatūrą galiukui (TRT) kaitinti, kuriuo kaitinamas dantis pulpos gyvybingumui nustatyti.</p>
2.	Darbo režimai	<p>1. Monokonusinės gutaperčos kaisčio nudeginimas ir kondensavimas;</p> <p>2. Karštos, skystos gutaperčos pripildymas į šaknies kanalą.</p>	<p>1. Monokonusinės gutaperčos kaisčio nudeginimas ir kondensavimas;</p> <p>2. Karštos, skystos gutaperčos pripildymas į šaknies kanalą.</p>
3.	Komplektacija:	<p>1. Bazinė stotis;</p> <p>2. Tėkmės antgalis;</p> <p>3. Maitinimo adapteris (su EU (europinio) tipo kištuku);</p> <p>4. Tėkmės kaitintuvas (HTR);</p> <p>5. Elektrinis šildomieji kondensatoriai (EHP):</p> <ul style="list-style-type: none"> <li>• Mažas (juodas) 40/0.025 – 40/0.03</li> <li>• Vidutinis (geltonas) 50/0.05</li> <li>• Didelis (mėlynas) 60/0.06</li> </ul>	<p>1. Bazinė stotis;</p> <p>2. Tėkmės antgalis;</p> <p>3. Maitinimo adapteris (su EU (europinio) tipo kištuku);</p> <p>4. Tėkmės kaitintuvas (HTR);</p> <p>5. Elektrinis</p>

		6. Gutaperča (GP): <ul style="list-style-type: none"> <li>• 20 G kasetės (10 vnt.)</li> <li>• 23 G kasetės (10 vnt.)</li> </ul> 7. Kaniulės lenkimo įrankis; 8. Kondensavimo antgalio priekio dangtelis; 9. Tėkmės antgalio priekio dangtelis; 10. Pradžios gairės;	šildomieji kondensatoriai (EHP): <ul style="list-style-type: none"> <li>Mažas (juodas) 40/0.025 – 40/0.03</li> <li>Vidutinis (geltonas) 50/0.05</li> <li>Didelis (mėlynas) 60/0.06</li> </ul> 6.Gutaperča (GP): <ul style="list-style-type: none"> <li>• 20 G kasetės (10 vnt.)</li> <li>• 23 G kasetės (10 vnt.)</li> </ul> 7Kaniulės lenkimo įrankis; 8Kondensavimo antgalio priekio dangtelis; 9Tėkmės antgalio priekio dangtelis; Pradžios gairės;
4.	Įrenginio parametrai	1. Matmenys ne didesni kaip 250 mm x 150 mm x 140 mm (ilgis x aukštis x plotis); 2. Svoris ne didesnis kaip 1,5 kg; 3. Maitinimo šaltinis – įkraunama ličio jonų (arba lygiavertė) baterija	1.Matmenys 220 mm x 148 mm x 136 mm (ilgis x aukštis x plotis); 2.Svoris 1,2 kg; 3.Maitinimo šaltinis – įkraunama ličio jonų baterija
5.	Baterijos pilno įsikrovimo laikas	Ne daugiau kaip 5 val. (šis reikalavimas netaikomas, jei prietaisu galima naudotis ir baterijos krovimo metu)	Baterijos pilno įsikrovimo laikas 3 val.
6.	Žymėjimas CE ženklų	Būtinai (kartu su pasiūlymu konkursui privaloma pateikti žymėjimą CE ženklų liudijančio dokumento (CE sertifikato arba EB atitikties deklaracijos) kopiją)	CE sertifikato kopiją
7.	Kartu su įrenginiu pateikiama dokumentacija	Naudojimo instrukcija lietuvių kalba	Naudojimo instrukcija lietuvių kalba
8.	Kondensavimo ir tėkmės antgaliui taikoma garantija	Ne trumpesnė kaip 24 mėnesiai	24 mėnesiai

**EQ-V**  
Endodontic Obturation System

❖ INSTRUCTION MANUAL



**EQ-V**  
Endodontic Obturation System

**Operating conditions**

- Temperature : 10 ~ 40 °C
- Humidity : 30 ~ 75%
- Atmosphere : 700 ~ 1050hPa

**Storage and transport conditions**

- Temperature : -20 ~ 60 °C
- Humidity : 5 ~ 90%
- Atmosphere : 700 ~ 1050hPa

Manufactured by  
**META SYSTEMS CO., LTD.**

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Made in Korea | REF: ML-21-004 REV.D | 2018. 12 |



❖ The operator should be aware of this manual prior to use

The logo for INDEX, consisting of the word "INDEX" in a bold, sans-serif font. The letter "I" is stylized with a vertical bar to its left.The logo for EQ-V, consisting of the text "EQ-V" in a bold, sans-serif font. Below it, in a smaller font, is the text "Ergonomic Computer Keyboard".

• Safety Notice .....	3
• Intended use .....	4
• Applied part .....	4
• Classification .....	5
• Symbols .....	5
• Component .....	6
• Part Names : EQ-V PACK .....	7
• Part Names : EQ-V FILL .....	9
• Before use .....	11
• How to use : EQ-V PACK .....	12
• How to use : EQ-V FILL .....	14
• How to use : GUTTA PERCHA CARTRIDGE .....	17
• How to replace battery .....	19
• How to charge battery .....	19
• Maintenance and Storage .....	20
• Downpacking with EQ-V PACK .....	21
• Backfilling with EQ-V FILL .....	24
• Trouble shooting .....	25
• Specification .....	25
• Part List .....	26
• Guidance and manufacturer's declaration .....	27
• Quality Guarantee and Responsibility .....	31

### ❖ Safety Notice

This notice will provide you with thorough introduction of how to use our EQ-V in properly in order to prevent you from certain injury or damage.

#### ⚠ WARNING

- The Pack tips and Fill needles are designed to reach high temperatures. Inadvertent contact with patient and operator must be avoided to prevent accidental burns.
- Handle empty Fill needle (or Gutta percha cartridge) by plastic locknut only. Other portions could be hot and could result in serious burns.
- This unit should NOT be used on a patient with a pacemaker.
- Only use the specified Meta Systems AC power supply and power cords.
- Use of other accessories that are not authorized for use in connection with this device may cause malfunction and compromise patient safety.
- No modification of this equipment is allowed.

#### ⚠ CAUTION

- This device has been investigated with regard to safety from electrical shock and fire hazard as well as electromagnetic compatibility (EMC). The device has not been investigated for other physiological effects. Please contact Meta Systems if you have any further questions regarding electrical safety or EMC.
- For use by qualified and trained personnel only.
- This device has been tested and found to comply with EMC limits for the Medical Device Directive 93/42/EEC. These limits are designed to provide reasonable protection against harmful interference in a typical medical installation. The device generates radio frequency energy and, if not installed and used in accordance with these instructions, may cause harmful interference to other devices in the vicinity. However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference with other devices, which can be determined by turning the device off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
  - Reorient or relocate the receiving device.
  - Increase the separation between devices.
  - Connect the device into an outlet on a circuit different from that to which the other device(s) is connected.
  - Consult the manufacturer for help.
- To reduce the risk of electrical shock, do not remove cover. Refer servicing to qualified service personnel.
- U.S. federal law restricts the sale of this device by or on the order of a healthcare professional.
- Remove main plug from wall socket to isolate unit from main power.
- Position device such that it can be easily unplugged from the wall.

### ❖ Intended use

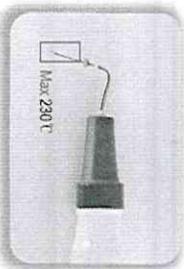
#### EQ-V PACK (Downpack heat source)

EQ-V PACK is designed for downpacking with warmed Gutta percha in the canal. Also, it can be used to cut off excess Gutta percha point or complete root canal filling by repeated use. Select the appropriate Pack tip and insert into tip holder of the EQ-V Pack. Available Pack tip sizes provided are XF, F, FM, M and ML.

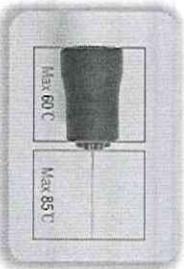
#### EQ-V FILL (Backfill extruder)

EQ-V FILL is designed to inject warmed Gutta percha that is specially formulated into the root canal directly. It provides easy and fast filling ability, but it is recommended to fill the apical part of the canal with the pack first to avoid any overfilling or under filling. The EQ-V FILL can be used for filling the remained part of the canal. Select the appropriate Fill needle and insert into the heater cap of the EQ-V FILL. Available Fill needle gauges provided are 23G and 25G.

### ❖ Applied part



• EQ-V PACK  
Pack tip (Max temp. : 230°C)



• EQ-V FILL  
Fill needle (Max temp. : 85°C)  
Heater cap with silicone thermal protector (max temp: 60°C)



EQ-V

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### Classification

- According to the type of protection against electric shock : Class I Equipment, including AC/DC Adaptor
- \*WARNING: To avoid the risk of electric shock, this equipment must only be connected to a supply mains with protective earth\*
- Internally powered equipment, when powered by Li-Ion battery.
- According to the degree of protection against electric shock : Type B Applied Part
- According to the degree of protection against harmful ingress of water : Ordinary Equipment(IPX0)

### Symbols

	Serial number		Authorized representative in the European Community
	Manufacturer		CE mark
	Date of manufacture		CSA mark
	This side up		Caution
	Fragile, handle with care		Refer to instruction manual
	Keep dry		Type B Applied part
	Temperature limit		WEEE wheeled bin
	Humidity limitation		Catalogue number
	Atmospheric pressure limitation		Warning: Hot surface

### Component

● EQ-V FULL GP  
 ○ EQ-V FULL GP  
 ● EQ-V FULL GPC  
 ○ EQ-V FULL GPC  
 ● EQ-V PACK MT

▲ EQ-V PACK  
 ▲ EQ-V FILL  
 ▲ EQ-V FILL D

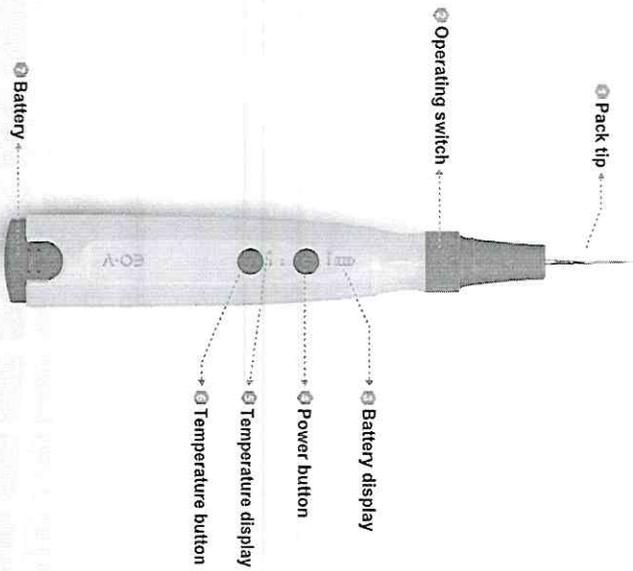
▲ Pack tip  
 ▲ Fill needle  
 ▲ GP Bar plus  
 ▲ Guna Penita Cartridge  
 ▲ Multi-tool  
 ▲ Brush  
 ▲ Silicone Thermal Protector  
 ▲ Single charger  
 ▲ Dual charger  
 ▲ Plunger seal  
 ▲ Seal driver  
 ▲ Battery  
 ▲ Adaptor  
 ▲ Power cord

#: The actual colors may be slightly different from the picture above.

EQ-V

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## ❖ The name of each part : EQ-V PACK

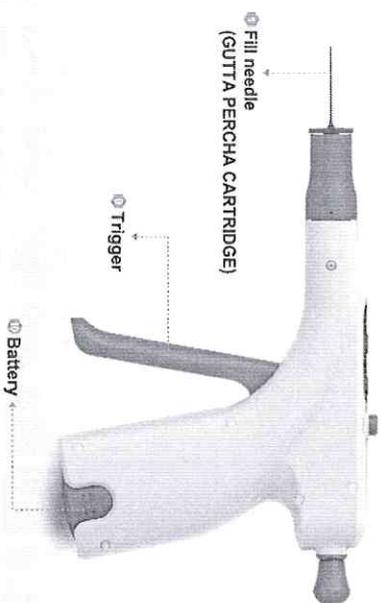
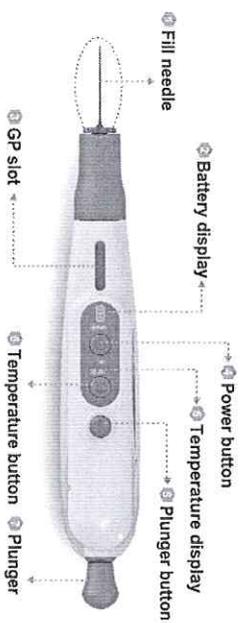


- 1 Pack tip**  
It is designed to pressurize the GP injected into the root canal. In addition, the exceeded GP may be cut or the root canal can be filled repeatedly.
- 2 Operating switch**  
Operation switch is designed to be pressed anywhere as a ring type. Once the operating switch is pressed pack tip is heating. (Continuous operation time: up to 4 seconds)
- 3 Battery display**  
It displays the remaining capacity of the battery.
- 4 Power button**  
It turns on / off the Power of the Pack.
- 5 Temperature display**  
It displays the temperature setting and operation.
- 6 Temperature button**  
It sets the operating temperature. Press the button to select the desired temperature (180 ℃ or 230 ℃).
- 7 Battery**  
It supplies power to the product. It is detachable and can be commonly used for PACK and FILL.

07

08

## ❖ The name of each part : EQ-V FILL



- 1 Fill needle**  
If the trigger is pulled the Gutta percha is softened and ejected.
- 2 Battery display**  
It displays the remaining capacity of the battery.
- 3 GP slot**  
Insert Gutta percha bar. Gutta percha bar must be inserted only one at a time. Does not apply to EQ-V Fill D
- 4 Power button**  
It turns the power on / off.
- 5 Temperature display**  
It displays the temperature setting and operation.
- 6 Temperature button**  
It sets the operating temperature. Press the button to select the desired temperature (160°C or 200°C).
- 7 Plunger**  
Each time the trigger is pulled, it moves step by step forward and serves to push the softened filler to the needle.
- 8 Plunger button**  
While pressing the button, insert or remove the plunger.
- 9 Trigger**  
If the trigger is pulled the Gutta percha is softened and is ejected. It serves to inject the softened Gutta percha through the needle.
- 10 Battery**  
It supplies power to the product. It is detachable and can be commonly used for PACK and FILL.



## ❖ Before use

### •Charger



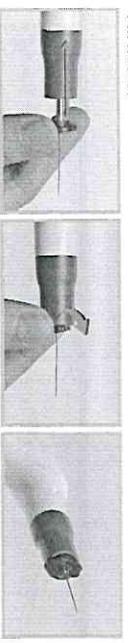
### •Battery (common use)



### •Pack tip



### •Fill needle



### •Plunger



## ❖ How to use : EQ-V PACK

**1 Mount the pack tip**  
Push the pack tip into the front of the pack.



**⚠ Pack tip must be replaced while the product is turned off. Otherwise it may cause burns.**

**2 Turn on the power.**  
By pressing the power button on the Pack turn on the power.



**3 Select the temperature.**  
By pressing the temperature selection button on the pack select the desired heating temperature of the pack tip. (190℃, 230℃)



**4 Heat the pack tip.**  
If the operation switch of the pack is pressed the pack tip is heating. Pack tip can be continuously heated up to four seconds. In four seconds, the operation switch should be pressed again and the pack tip can be heated.





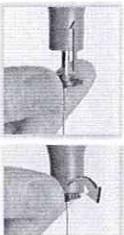
**EQ-V**

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## ❖ How to use : EQ-V FILL

### 1 Mount the Fill needle

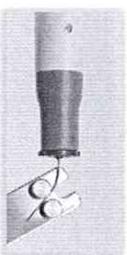
Slide the Fill needle by matching the shape of the needle to the shape of the front mounting entrance of EQ-V-FILL, and then tighten by turning the handle of the Fill needle clockwise.



⚠ Replace the Fill needle while the product is off. While the product is in operation the heat of the heater may cause burns.

### 2 Bend the Fill needle

Bend the fill needle by using multi-tool or tweezers.



### 5 Turn off the power.

Press and hold the power button (for at least 1 second) to turn off the power.



### 6 Remove the pack tip.

If the pack tip is pulled by holding the bent portion of the pack tip, the pack tip can easily be removed.



⚠ Do not touch the pack tip within one minute after the power is turned off. Otherwise it may cause burns.

### 7 Sterilize the pack tip

The pack tip, that is used once, must be sterilized with autoclave before reuse. (sterilization conditions, 132<sup>o</sup>, 4minutes)



⚠ When a non-sterile pack tip is reused to other patients they are at a risk of cross infection.

### 8 The debris on the products shall be wiped out

The debris that has accumulated on the product should be washed with cotton moistened with alcohol. Alcohol that remains in the product should be completely removed with a dry cloth.



### 3 Insert the GP bar

By using a pair of tweezers, insert the GP bar into the GP bar slot. For GP bar, insert only one at a time.



⚠ Use Gula Percina Bar provided by META BIOMED Only.

### 4 Insert the plunger

Insert the plunger in the rear end of EQ-V. Fill and push forward as much as possible. When the plunger is pushed please move the plunger while pressing the plunger button.



13

14



EQ-V

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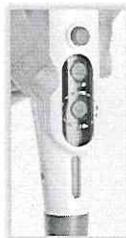
**5 Turn on the power**  
Press the power button to turn on the power of the EQ-V Fill.



**6 Select the temperature of the heater**  
Press the temperature selector button and select the desired temperature of the bobbin heater. One of the temperature 160 °C and 200 °C can be selected.

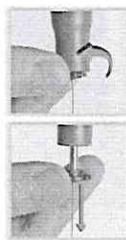


**9 Turn off the power**  
After use, press and hold the power off button (for at least 1 second) to turn off the power.  
It can turn on by pressing briefly when the power is turned on. Power may only be turned off by pressing and holding (for at least 1 second). When turning off the power, please check that the power LED is off.



**10 Remove the Fill needle**  
After use, the Fill needle should be turned counterclockwise and then separated it by pulling.

**⚠** Do not touch the Fill needle within one minute after the power is turned off. There is a risk of burns.



**7 Warm up the heater**  
When the EQ-V Fill power is turned on or the temperature selection is completed, the heater starts to warm up to the set temperature automatically.  
While it is warming up, the blue temperature LED (Temp. Display) is blinking. When the LED stops blinking it means that the warming up is completed.



**8 Pull the trigger**  
When the warming up is finished, by pulling the trigger the GP (Gutta percha) that is softened by the heat, is discharged to the needle.



**11 Sterilize the Fill needle**  
The Fill needle that is used once must be sterilized with autoclave before reuse. (sterilization conditions: 132 °C, 4min/uses)



**⚠** When a non-sterile Fill needle is reused to other patients they are at a risk of cross infection.

**12 Wipe the debris from the product**  
The debris that has accumulated on the product should be washed with cotton moistened with alcohol. Alcohol that remains in the product should be completely removed with a dry cloth.





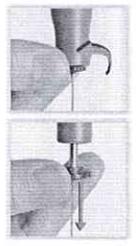
EQ-V

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## ❖ How to use : GUTTA PERCHA CARTRIDGE (optional items)

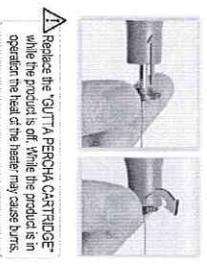
### 1 Remove the fill needle.

⚠ GUTTA PERCHA CARTRIDGES are for single-patient use. Do not reuse.



### 2 Mount the GUTTA PERCHA CARTRIDGE

Slide the "GUTTA PERCHA CARTRIDGE" by matching the shape of the needle to the shape of the front mounting entrance of EQ-V FILL, and then tighten by turning the handle of the "GUTTA PERCHA CARTRIDGE" clockwise.



⚠ Replace the "GUTTA PERCHA CARTRIDGE" while the product is off. While the product is in operation, the heat of the heater may cause burns.

### 5 Select the temperature of the heater

Press the temperature selector button and select the desired temperature of the bobbin heater. One of the temperature 150°C and 200°C can be selected.



### 6 Warm up heater

When the EQ-V Fill power is turned on or the temperature selection is completed the heater starts to warm up to the set temperature automatically. While it is warming up the blue temperature LED (Temp. Display) is blinking. When the LED stops blinking it means that the warming up is completed.



### 3 Insert the D-Plunger

Insert the plunger in the rear end of EQ-V Fill and push forward as much as possible. When the plunger is pushed please move the plunger while pressing the plunger button.

⚠ Use only "D-Plunger"



Please purchase D-plunger separately to use refill type EQ-V FILL (refer to the part list p.26)

### 4 Turn on the power

Press the power button to turn on the power of the EQ-V FILL.



### 7 Pull the trigger

When the warming up is finished, by pulling the trigger the GP (Gutta-percha) that is softened by the heat, is discharged to the needle.



### 8 Turn on the power

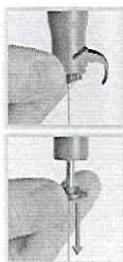
After use, press and hold the power button (for at least 1 second) to turn off the power. It can turn on by pressing briefly when the power is turned on. Power may only be turned off by pressing and holding (for at least 1 second). When turning off the power, please check that the power LED is off.





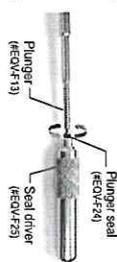
## 9 Remove the GUTTA PERCHA CARTRIDGE

After use, the "GUTTA PERCHA CARTRIDGE" should be turned counterclockwise and then separated by pulling.



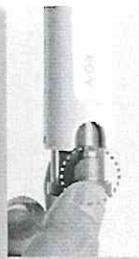
### ❖ How to replace plunger seal

Put a seal driver into the plunger seal.  
Remove the seal by turning the driver CCW.  
Insert the new plunger seal into the seal driver and make it tightened by turning the driver CW.



### ❖ How to replace battery

Remove the battery by pulling the battery while pressing and holding simultaneously, "battery release button" located at the lower part on both sides of the product.



### ❖ How to charge battery

Mount the separated battery (as shown on the left) well into the battery slot on the charger (Charger). When mounting the battery while the power is connected to the charger, make sure that the charging LED is turned on. If the charging LED does not turn on please remount the battery.



⚠ When you charge the battery, you should use the AC/DC adaptor which has approved by META SYSTEMS CO., LTD.

#### AC / DC Adaptor

- Manufacturer : Bridgspower Corp.
- Model : BPM020S09FC4

#### Li-Ion Battery

- Rechargeable
- 3.6V/d.c.

### ❖ Maintenance and Storage

- **Cleaning**  
Cleaning of the handpiece body  
: When cleaning the handpiece, wipe with cotton moistened with alcohol.  
: Clean the EQ-V-FILL using the brush soaked into the alcohol



• When you remove the needle from Fill unit, it will be easier to heat on the unit about 2 seconds before pulling the needle off.

#### • Sterilization

Spare parts should be disinfected according to the standard condition in an individual sterilization wrapper or pouch. The metal of the part may be corded when it is in direct contact with steam. Please follow the below instructions for each components.

- Pack tip : 132°C, 4min
- Fill needle : 132°C, 4min
- Silicone thermal protector : 132°C, 4min

⚠ Do not sterilize the "GUTTA PERCHA CARTRIDGE"

#### • Disposal

Please contact your nearest representative office or your local environmental office in case of disposal of this unit.

#### • Operating, Storage & Transport

##### Operating conditions

- Temperature : 10 ~ 40°C
- Humidity : 30 ~ 75%
- Atmosphere : 700 ~ 1060hPa

##### Storage and transport conditions

- Temperature : -20 ~ 60°C
- Humidity : 5 ~ 90%
- Atmosphere : 700 ~ 1060hPa



**EQ-V**

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## Downpacking with EQ-V PACK

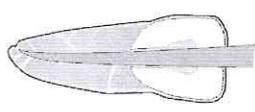
**1 Preparation-Gutta Percha point**  
 Select same size Gutta Percha point with previous used file.  
 If 06 Taper #30 master apical file is used, select 06 Taper #30 Gutta Percha point.



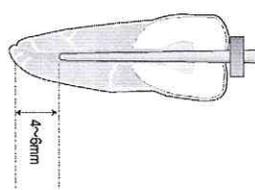
**2 Preparation-Hand plugger**  
 Prepare 2-3 pluggers to compact Gutta Percha, mark root canal length by rubber stopper.



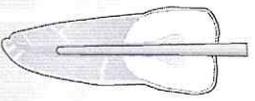
**5 Confirmation of tug back**  
 Fit a Gutta Percha point that matches prepared root canal. To check a tug will be felt.



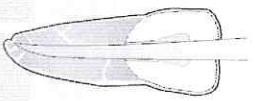
**6 Length mark to the Pack tip**  
 Mark length on the selected Pack tip, 4-5mm short of working length by rubber stopper.



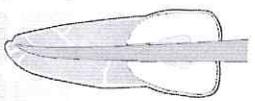
**3 Preparation-Pack tip**  
 Select proper Pack tip for prepared root canal.



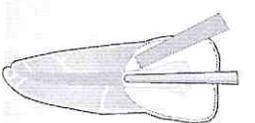
**4 Dry root canal**  
 Dry root canal using paper point.



**7 Insertion of Gutta Percha point**  
 Coat 3mm from the tip with sealer, insert it to root canal with pumping action.



**8 Removal of excess Gutta Percha**  
 Cut the excess Gutta Percha by heated Pack tip.





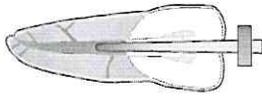
**EQ-V**

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## ❖ Backfilling with EQ-V FILL

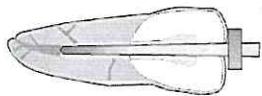
### 9 Heating & Insertion

Heat and insert Pack tip with Gutta Percha to 4-6mm short of the working length.



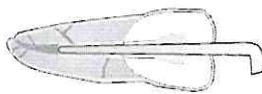
### 10 Compaction

Stop the heating and maintain apical pressure about 10 seconds for prevention of dead space.



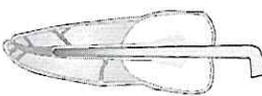
### 13 Fill needle insertion

Insert Cartridge needle as far as it will go into the canal space without binding.



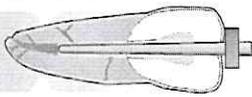
### 14 Soften

Wait 5 seconds until the surface of filled Gutta Percha softens.



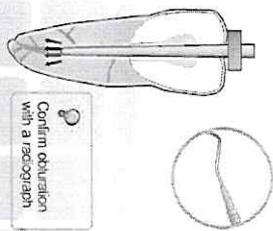
### 11 Removal of Pack tip

Remove after heating the Pack tip for 1-2 seconds to avoid pulling out the Gutta Percha with the Pack tip.



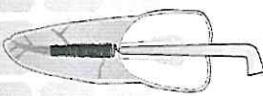
### 12 Compact

Compact the warmed Gutta Percha with the plugger.



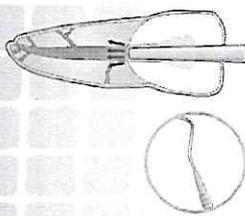
### 15 Infection

Push the Operating button and fill the Gutta Percha up to root canal. The Fill needle will push out the Gutta Percha into the root canal.



### 16 Compaction

Compact Gutta Percha with big plugger.



23

24



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### Trouble shooting

Problem	Solutions
When EQ-V Pack & Fill is not working	Make sure that the battery is installed. Make sure that the power lamp (LED) is on. Replace with the fully charged battery.
When it is not working even though the operation button of the EQ-V Pack is pressed.	Make sure that the power is turned on. The current pack tip (Pack tip) could be defective. Please replace with the spare pack tip. Make sure that the pack tip (Pack tip) is correctly mounted.
Even though the trigger is pulled, the EQ-V Fill GP cannot be discharged.	Make sure that the power is turned on. Make sure that a GP bar is present in the product. Make sure that the temperature LED (blue) lights up. If the temperature LED blinks it means the warm-up is in progress. During the warm-up, it may be difficult to discharge the GP(Gutta-percha).
When fill needle is not separated easily from the device	Please heat the fill about 2 seconds before pull out the fill needle.

▲ Use Gutta Percha Point & Bar provided by META BIOWED CO., LTD. only.  
Use GUTTA PERCHA CARTRIDGE provided by META SYSTEMS CO., LTD. only.

### Specification

- EQ-V PACK : ~172.5mm × 30mm × 30mm (L x W x H)
- EQ-V FILL : ~180mm × 30.4mm × 122.3mm (L x W x H)
- Battery : 3.6V
- Adaptor : Input 100-240V~, 50 / 60Hz, Output 9V, 2A  
( Bridge Power Corp. BPM20S09F04 )
- Auto off : 5 minutes

### Part list

Part name	Part No.
EQ-V Fill (Handpiece)	EQV-F10
EQ-V Pack (Handpiece)	EQV-P10
Dual charger (e)	EQV-C21
Single charger (e)	EQV-C22
Battery (Li-Ion)	EQV-C30
AC/DC Adapter	4491EACAD01
Power cord (EU)	WS-010+WS-002
Power cord (US)	WS001HWH
Fill needle 23G (6pcs)	EQV-F28
Fill needle 25G (6pcs)	EQV-F29
Plunger	EQV-F13
Plunger seal (2pcs)	EQV-F24
Seal driver	EQV-F25
Silicone Thermal Protector (2pcs)	EQV-F14
Cleaning kit (Multi tool & Brush)	EQV-S02
- Multi tool	EQO35
- Brush	EQO37
Gutta percha bar plus	EQO42
Pack tip (40/03)	EQV-F21
Pack tip (50/04)	EQV-F22
Pack tip (60/05)	EQV-F23
Pack tip (60/05L)	EQV-F24
Pack tip (50/04, 60/05)	EQV-F25
Pack tip (40/03, 50/04, 60/05, 60/05L)	EQV-F26



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### 1. Guidance and manufacturer's declaration – electromagnetic emissions

The EQ-V-PACK, EQ-V-FILL is intended for use in the electromagnetic environment specified below. The customer or the user of the EQ-V-PACK, EQ-V-FILL should assure that it is used in such an environment.

Emissions test	Compliance	Electromagnetic environment - guidance
RF emissions CISPR 11	Group 1	The EQ-V-PACK, EQ-V-FILL uses RF energy only for its internal functions. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class A	The EQ-V-PACK, EQ-V-FILL is suitable for use in all establishments other than domestic, and may be used in domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes, provided the following warning is heeded: <b>Warning</b> The EQ-V-PACK, EQ-V-FILL is intended for use by healthcare professionals only. This equipment / system may cause radio interference or may disrupt the operation of nearby equipment. It may be necessary to take mitigation measures, such as re-offering or relocating the EQ-V-PACK, EQ-V-FILL or shielding the location.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/flicker emissions IEC 61000-3-3	Complies	

### 2. Guidance and manufacturer's declaration – electromagnetic immunity

The EQ-V-PACK, EQ-V-FILL is intended for use in the electromagnetic environment specified below. The customer or the user of the EQ-V-PACK, EQ-V-FILL should assure 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	±8 kV contact ±8 kV air	±6 kV contact ±8 kV air	Floors should be wood, concrete or ceramic tiles. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical 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 61000-4-5	±1 kV line(s) to line(s) ±2 kV line(s) to line(s) ±1 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.
Voltage dips, short interruption, and voltage variations on power supply input lines IEC 60601-4-11	< 5% $U_T$ ( $> 95\%$ dip in $U_T$ ) for 0.5cycle 40% $U_T$ (60% dip in $U_T$ ) for 5 cycle, 6 cycle 70% $U_T$ (30% dip in $U_T$ ) for 25 cycle, 30 cycle < 5% $U_T$ ( $> 95\%$ dip in $U_T$ ) for 5s	< 5% $U_T$ ( $> 95\%$ dip in $U_T$ ) for 0.5 cycle 40% $U_T$ (60% dip in $U_T$ ) for 5 cycle, 6 cycle 70% $U_T$ (30% dip in $U_T$ ) for 25 cycle, 30 cycle < 5% $U_T$ ( $> 95\%$ dip in $U_T$ ) for 5s	Mains power quality should be that of a typical commercial or hospital environment. If the user of the EQ-V-PACK, EQ-V-FILL image intensifier requires continued operation during power mains interruptions, it is recommended that the EQ-V-PACK, EQ-V-FILL image intensifier be powered from an uninterruptible power supply.
Power frequency (50 Hz and 60 Hz) 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.

NOTE:  $U_T$  is the a.c. mains voltage prior to application of the test level.



3. Guidance and manufacturer's declaration – electromagnetic immunity

The EQ-V PACK, EQ-V FILL is intended for use in the electromagnetic environment specified below. The customer of the EQ-V PACK, EQ-V FILL should assure that it is used in such an environment.

Immunity test	IEC 60901 test level	Compliance level	Electromagnetic environment - guidance
Conducted RF IEC61000-4-6	3 Vrms 150 kHz to 80 MHz	3 Vrms	Portable and mobile RF communications equipment should be used no closer to any part of the EQ-V PACK, EQ-V FILL, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance $d=1.2\sqrt{P}$ $d=2.3\sqrt{P}$ 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).
Radiated RF IEC61000-4-3	3 V/m 80 MHz to 2.5 GHz	3 V/m	Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, should be less than the compliance level in each frequency range. <sup>b</sup> Interference may occur in the vicinity of equipment marked with the following symbol: 

NOTE 1 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.

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 EQ-V PACK, EQ-V FILL is used exceeds the applicable RF compliance level above, the EQ-V PACK, EQ-V FILL should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the EQ-V PACK, EQ-V FILL.

Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

4. Recommended separation distances between portable and mobile RF communications equipment and the EQ-V PACK, EQ-V FILL

The EQ-V PACK, EQ-V FILL is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the EQ-V PACK, EQ-V FILL can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the EQ-V PACK, EQ-V FILL 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	80 kHz to 800MHz	800 MHz to 2.5 GHz
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 transmitters rated at a maximum output power not listed above, the recommended separation on distance d 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 1 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.



## Quality Guarantee and Responsibility

### Quality Certificate

Product Name	Endodontic Obvuration System	Model	EQ-V
Date of Manufacture		Manufacture Number	
Date of Purchase		Guarantee period	Device : Year Accessory : 6months Battery : 6months
Manufacturer	META SYSTEMS CO., LTD.	Contact	+82-31-731-7377
Address	#1214-18, Sixx tower 12F, 484, Durdodun-daero, Jungwon-gu, Seongnam-si, Gyeonggi-do, 13229, Korea		
Distributor	META BIOMED CO., LTD.	Contact	+82-43-216-0433
Address	270, Osongseongmyeong 1-ro, Osong-eup, Cheongwon-gun, Chungcheongbuk-do, Korea		
Purchase Amount		Quantity	

If a problem has occurred during the guarantee period due to manufacturing or natural failures please contact META SYSTEMS CO., LTD. Warranty shall be provided without charge during the guarantee period.

### Notice

- The customer shall send the filled in copy of the guarantee certificate either by post or fax.
- The following problems are exempt from the guarantee :
  - The product is out of warranty (i.e., purchased over device : Year, battery : 6months )
  - The problem has been caused by incorrect use by the operator
  - In case of natural disaster (with the exception of thunderbolts)
- Unregistered customers
- The customer shall be responsible for any costs incurred in sending the product back to META SYSTEMS CO., LTD. and META SYSTEMS CO., LTD. will cover any return costs.
- When sending the AS product to us by postal mail, please be sure to securely package it in the product box provided.
- This product has been manufactured specifically for its purpose of treating root canals. META SYSTEMS CO., LTD. shall not be responsible for any damages caused by dismantling the product or using it for any other purposes.

### Limitation of responsibility

- We are not responsible for product damage, physical disability, or accidents caused by repairs done by any other party than a member of our company or an AS agent designated by us.
- We are not responsible for product damage, physical disability, or accident caused by modification of the product structure.
- We are not responsible for product damage, physical disability, or accidents arising from the use of any product manufactured by manufacturers other than META SYSTEMS CO., LTD.
- We are not responsible for product damage, physical disability, or accident arising from the use of parts or components not approved by META SYSTEMS CO., LTD.
- We are not responsible for product damage, physical disability, or accident caused by a user failing to observe the cautions and warnings in the instructions or deviating from the instructions.
- We are not responsible for product damage, physical disability, or accident caused by a user failing to observe the use/operation/maintenance/installation conditions and proper power supply described in the instructions.
- We are not responsible for product damage, physical disability, or accident caused by natural disasters, such as fire, flood, thunder, and lightning.
- We are not responsible for product damage, physical disability, or accident caused by a user's inattention or negligence in the use of the product.





# EQ-V

Easy and convenient cordless obturator  
with innovative cartridge

## Your Choice for Continuous Wave Obturation!

The new EQ-V system by META BIOMED  
for the most reliable, convenient and  
precise root canal obturation. Find out  
more inside!



# The EQ-V System – Precision, Convenience, Innovation



## EQ-V Pack

- Intuitive handling for smooth, controlled filling
- Soft yet durable needle
- 360° activation ring button for mandible and maxilla



## EQ-V Fill

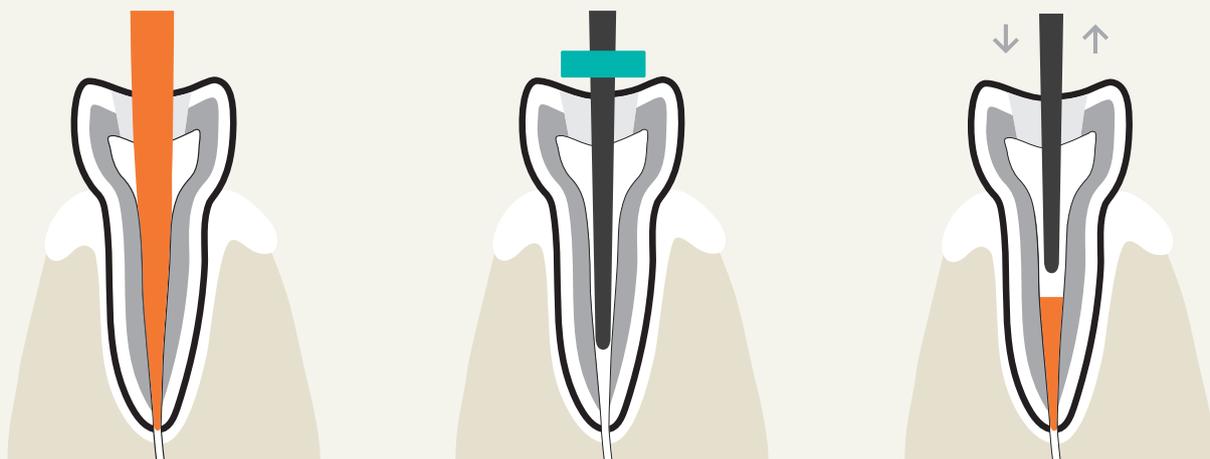
- Ergonomic, lightweight design for maximum comfort
- Long battery life
- Easy to use, outstanding performance



## EQ-V Cartridge

- Innovative 360° rotating cartridge system for unparalleled access and precision
- Easily replaceable and disposable

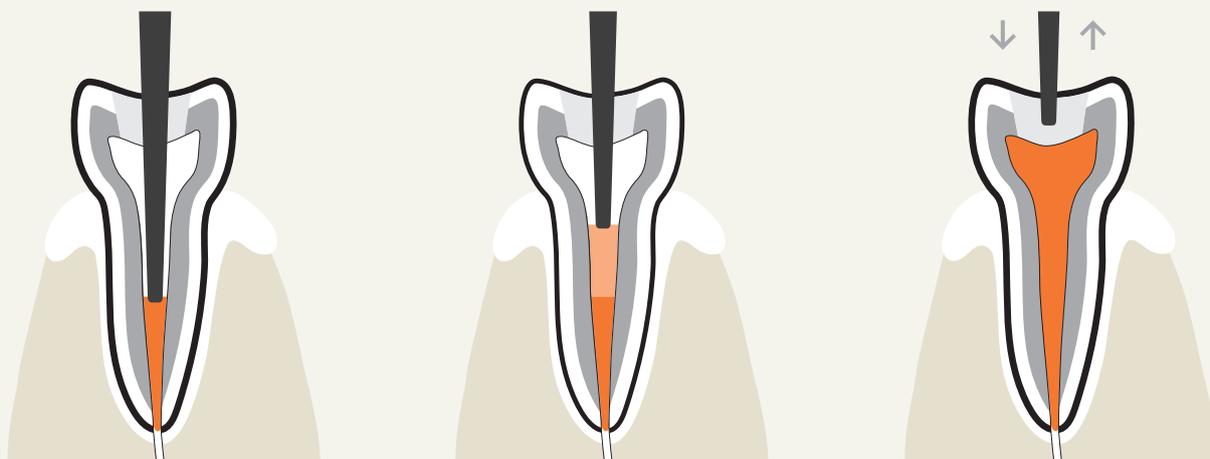
# Obturation Sequence – Fast, reliable and dense filling



**1**  
Fit a master cone that matches the size and taper of the canal being obturated and trim the tip to 0.5 mm short of the working length.

**2**  
Select an EQ-V Pack Tip to reach a depth 4–6 mm short of the working length.

**3**  
Coat the bottom 3 mm of the master cone with sealer and insert it into the root canal. Remove excess gutta-percha using the EQ-V Pack Tip to 4–6 mm short of the working length. Condense the gutta-percha with a hand plugger to completely obturate the apical area and accessory canals.

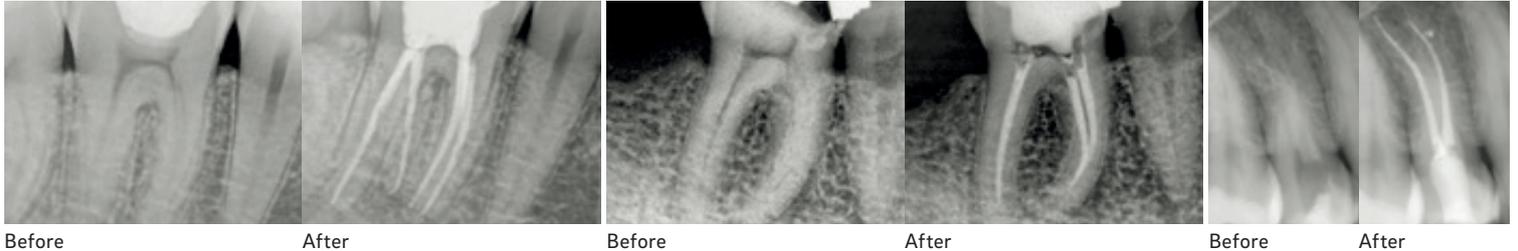


**4**  
Insert the EQ-V Fill's cartridge into the root canal and wait 5 seconds for it to heat.

**5**  
Slowly pull on the trigger to back-fill the root canal with gutta-percha to the canal orifice.

**6**  
Condense the hot gutta-percha with a hand plugger to achieve complete obturation of the root canal.

# Clinical Cases: Gutta-percha obturation with EQ-V



Before After  
Courtesy of  
Dr Jenner O. Argueta

Before After  
Courtesy of  
Dr Álvaro Barrios Angulo

Before After  
Courtesy of  
Dr Walter Vargas Obando

## EQ-V Specifications

<b>Charger</b>	Input	100–240 V
	Output	DC 9V,1.8 A
<b>EQ-V Fill</b>	Heater	DC 3.8V, 8W
	Heating Time	35 seconds
<b>EQ-V Pack</b>	Heating Time	1 second
<b>Operating Time</b>	Fill	Continuous for 1.5 hours
	Pack	Continuous for 1.5 hours
<b>Battery</b> (Li-ion type)	Li-ion	ICR 18650-26 (Samsung SDI) 3.8 V 2, 400 mA
	Charging Time	3 hours



## EQ-V Contents

Part Number	Description	FILL (R)	FILL (D)	PACK	Battery	Single Charger	Dual Charger	Pack Tip	Cartridge-R (6ea/pack)	Cartridge-D (10ea/pack)	GP Bar (100ea)	Multi-tool	Brush	AC Adapter
EQV026	EQ-V Full Kit (R)	1		1	3		1	2 (F,FM)	1 pack (25G)		1	1	1	1
EQV028	EQ-V Full Kit (D)		1	1	3		1	2 (F,FM)		1 pack (25G)		1	1	1
EQV027	EQ-V Fill Kit (R)	1			2	1			1 pack (25G)		1	1	1	1
EQV029	EQ-V Fill Kit (D)		1		2	1				1 pack (25G)		1	1	1
EQV022	EQ-V Pack Kit			1	2	1		2 (F,FM)						1

R = Refillable | D = Disposable

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europe@metabiomed-inc.com  
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EC Certificate Full Quality Assurance System: KR03/58773

The management system of

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(Head office & Osong Factory) 270, Osongsaengmyeong1-ro, Osong-eup,  
Heungdeok-gu, Cheongju-si, Chungcheongbuk-do, Korea

has been assessed and certified as meeting the requirements of

## Directive 93/42/EEC on medical devices, Annex II (excluding Section 4)

For the following products

**The scope of registration appears on page 2 of this certificate.**

This certificate is valid from 27 June 2018 until 06 February 2023  
and remains valid subject to satisfactory surveillance audits.

Re certification audit due before 06 February 2021

Issue 51. Certified since 03 April 2003

Certification is based on reports numbered WW/PCI/208838

This is a multi-site certification.

Additional site details are listed on subsequent pages.

Authorised by

**SGS United Kingdom Ltd, Notified Body 0120**

SGS United Kingdom Ltd

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SGS CE 02 0315 M2

Page 1 of 2



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# META BIOMED CO., LTD.

## Directive 93/42/EEC

on medical devices, Annex II (excluding section 4)

Issue 51

Detailed scope

- Sterile Absorbent Paper Points;**
- Dental Root-Canal Obturating Materials (Gutta Percha Points and Bars, Gutta Percha Plus, Gutta Percha Bar Plus);**
- Calcium Hydroxide Temporary Filling Material (Metapaste);**
- Hydraulic Temporary Restorative Material (MD-Temp, MD-Temp Plus);**
- Resin Based Root Canal Sealer (ADSEAL);**
- Zinc Oxide Based Root Canal Sealer (ZOB Seal);**
- Root Canal Cleaning and Smear Layer Removing Solution (MD-Cleanser, MD-ChelCream);**
- Warmed Gutta Percha Obturation System including Gun, Pen, Gun Needle and Pen Tip (E & Q Master, GENESYS Pack and Fill, elementsfree);**
- Dental Temporary Cement (NETC);**
- Dental Etchant (Meta Etchant);**
- Dental Resin Cement (Metacem);**
- Dental adhesive (Meta P&Bond);**
- Dental Composite Resin (Nexcomp, Nexcomp Flow, NexCore);**
- Dental Light Curing Cavity Liner (Biner LC);**
- Light cured temporary filling materials (NexTemp LC, NexTemp HV);**
- Sterile non-absorbable polymer ligating clip for vessel or tissue ligation (Meta Clip);**
- Glass fiber reinforced composite root post system including post, post drill (NexPost);**
- Reusable Rotary Endo File for root canal cleaning and shaping (Aurum) ;**

Where the above scope includes class III medical device(s), a valid EC Design Examination Certificate according to Annex II (Section 4) is a mandatory requirement for each device in addition to this certificate to place that device on the market

Additional facilities

**(Cheongju Factory) 136, Mochung-ro, Seowon-gu, Cheongju-si, Chungcheongbuk-do, Korea**

## VERTIMAS

1psl.

SGS EC Sertifikatas Pilna kokybės užtikrinimo sistema: KR03/58773

Vadybos sistema:

META BIOMED CO., LTD.

(Pagrindinė būstinė ir fabrikas) 634, Yeonje-ri, Gang-oe-myeon, Cheong-won-gun,  
Chungcheongbuk-de Korėja

(Cheongju fabrikas) 414-12, Mochung-dong, Heungdeok-gu, Cheongju-si, Chungcheongbuk-do,  
Korėja

Buvo pažymėta ir įvertinta kaip atitinkanti standarto reikalavimus:

Direktyva 93/42/EEC

Medicinos prietaisams Priedas II (išskyrus sekciją 4)

Produktai:

Šarašas registruotų produktų, šio sertifikato antrame puslapyje

Šis sertifikatas galioja nuo 2018 birželio 27d iki 2023 vasario 6d

Lieka galioti priklausomai nuo patenkinamų priežiūros audito rezultatų

Re-sertifikacija turi būti atlikta prieš 2021 vasario 6d

Laida 51. Sertifikuota nuo 2003 balandžio 3d

Sertifikacija yra paremta raportais numeruotais WW/PCI 208838

Pasirašyta

SGS United Kingdom Ltd, Patvirtinanti įstaiga

## VERTIMAS

2psl.

SGS EC Sertifikatas Pilna kokybės užtikrinimo sistema: KR03/58773

Vadybos sistema

META BIOMED CO., LTD.

Direktyva 93/42/EEC

Medicinos prietaisams Priedas II (išskyrus sekciją 4)

Laida 51

Detalizuotas sąrašas:

Sterilūs sugeriantys popieriniai kaiščiai

Gutta Percha kaiščiai ir juostos

Gutta Percha laikikliai

Laikini užpildai kalcio hidroksido pagrindu (Metapaste)

Hidraulinė laikina atstatomoji medžiaga (MD-Temp)

Šaknies kanalo užpildas derviniu pagrindu (Adseal)

Šaknies kanalo užpildas cinko oksido pagrindu (Zobseal)

Skystis šaknies kanalo plovimui ir dėmių nuėmimui (MD-Cleanser, MD-ChelCream)

Šildanti gutta percha įvedimo sistema (E&Q Plus, E&Q wireless, E&Q Master, Genesys Pack and Fill ) susidedanti iš pistoleto, rašiklio, pistoleto adatos ir rašiklio antgalio

Odontologinis laikinas cementas (NETC)

Odontologinis Etchantas (Meta Etchant)

Odontologinis dervinis cementas (Metacem)

PirBond odontologiniai klijai (Meta P&Bond)

Odontologinė kompozitinė derva (Nexcomp, Nexcomp Flow)

MPEFIL SP Poliglykolinė rūgštis, skirta sutraukti operacinei siūlei (Meta Clip)

Odontologinis, šviesoje kietėjantis ertmių pamušalas (Biner LC)

Sustiprintų stiklo pluošto kaiščių sistema su grąžtais (NextPost)

Daukartinio naudojimo besisukantys endodontiniai failai šaknies kanalų valymui ir apdirbimui (Aurum)

Sertifikatas sutinkamai su Priedu II (sekcija 4) yra reikalaujamas, norint tiekti Kalsės III produktus, aprašomus šiame sertifikate, į rinką, taip pat ženklinti EC ženklu.