

APEXPILOT® G2

Cordless Endo Motor

Instruction for Use



Beyes[®]
CANADA

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Note: The description on reciprocating mode is only applicable for the device that has reciprocating mode.

1. Introduction

1.1 Features

- Use of brushless motor - low noise and long lifetime
- Cordless
- Contra angle with 360° rotation
- Built-in file parameters
- 15 memory setting
- Auto apical reverse/stop
- Large LCD display
- Connectable to Accurator A2, apex locator

1.2 Intended use

1.2.1 This device can be used for preparation and enlargement of root canals.

1.2.2 This device should only be operated by licensed dental professionals

ApexPilot G2 is mainly used for Endodontic treatments. It can be used as an endo motor for preparation and enlargement of root canals.

1.3 Contraindication

- Patient or doctor with a pacemaker
- Patient with hemophilia
- Patient with heart disease
- Pregnant women or young

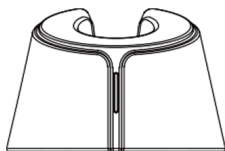
1.4 Package includes



Motor handpiece



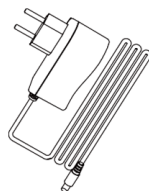
Contra angle



Charging base



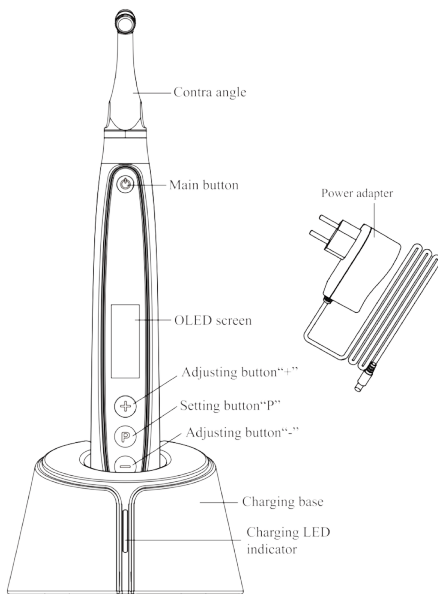
Nozzle



Power adapter

- O-ring
- Silicon cover
- Mini 8P cable
- Instruction manual

Diagram of components and control buttons



2. Warning and safety

Warning

- First read this instruction manual before operating this device
- This device should only be operated by licensed dental professionals
- Do not directly or indirectly place this device near heat source.
- Operate and store this device in reliable environment.
- This device requires special precautions regarding electromagnetic compatibility (EMC) and must be in strict accordance with the EMC information for installation and use. Do not use this equipment especially in the vicinity of fluorescent lamps, radio transmitting devices, remote control devices, handheld and mobile high-frequency communication devices.
- Extended time use of Reciprocating Mode may result in motor overheat
- Use the original contra angle
- Do not make any changes to the device. Any changes may violate safety regulations, causing harm to the patient
- Use original power adapter. Other power adapter will result in damage to lithium battery and control circuit.
- The motor handpiece cannot be autoclaved. Use disinfectant of neutral pH value or ethyl alcohol to wipe its surface.
- Do not remove contra angle before motor stops. It would cause damage to handpiece and contra angle.
- Secure the file before starting
- Set torque and speed as per the recommended specifications of file manufacturer.
- Follow instruction in this manual to replace battery and only replace with original lithium battery.
- Remove battery from the handpiece before long-term storage
- Do not touch handpiece or charging base for more than 10 sec during charging. Heat builds up while charging.

Safety

- Do not use device in the presence of a flammable anesthetic mixture with air, oxygen, or nitrous oxide.
- Do not continuously use contra angle with patient longer than 10 minutes. The temperature of contra angle may reach 46.6°C. Allow time to cool down before further use.

3. Installation

3.1 Battery

Handpiece has built-in lithium battery. Battery charges wirelessly through the base.

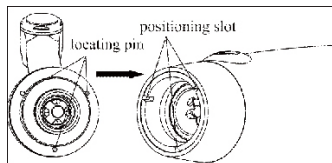
- Plug in power adapter and connect it to the charging base
- Seat handpiece on the charging base
- Blue light will be flashing while device is charging
- Blue light will stay on when fully charged

3.2 Contra angle

- The contra angle adopts precision gear transmission, and the transmission ratio is 6:1.
- Clean and disinfect with disinfectant of neutral PH value before the first use.
- Clean and disinfect after each patient use
- Sterilize under 134°C, 2.0~2.3bar (0.20~0.23MPa).
- Contra angle in package only fits ApexPilot G2. It does not fit other handpieces.

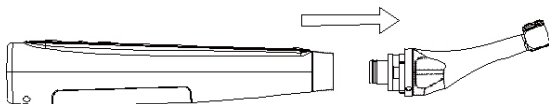
Installation of contra angle

- Align any locating pin of the contra angle with the positioning slot on the motor handpiece and push in the contra angle horizontally.
- The three locating pins on the contra angle are inserted into the three positioning slots on the motor handpiece.
- A “click” sound indicates that the installation is in place.
- The contra angle can be rotated 360° freely.



Removal of contra angle

Pull out the contra angle horizontally when the motor handpiece is turned off.



Warning

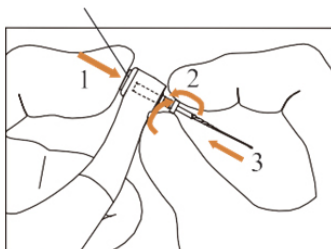
After installation, give the contra angle a light tug to make sure that it is securely attached before starting motor.

Stop the motor before plugging in or pulling out the contra angle.

3.3 File

Installation of file

1. Insert file into the chuck
2. Push button
3. Rotate file to fit the latch groove and slip in
4. Release push button to lock file
5. Pull file to ensure security



Note:

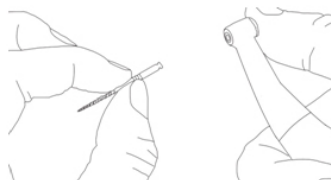
Only use files with shanks that meet the ISO standard. (ISO standard: $\text{Ø}2.334 - 2.350 \text{ mm}$)

Warning

Insert and remove file without holding the push button may damage the chuck of contra angle.

Removal of file

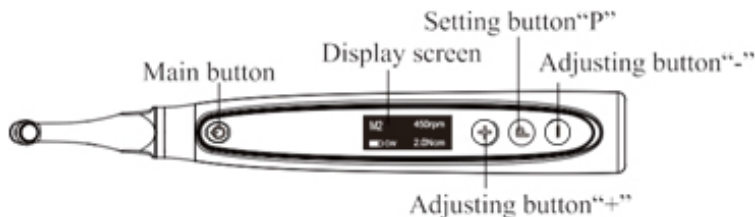
1. Press and hold the push button
2. Pull out the file



Warning

- Stop motor before plugging and pulling out the file.
- Removing files without holding the push button will damage the chuck of contra angle.
- Use caution when inserting and removing files to avoid injury to fingers

4. Operation



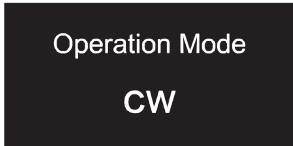
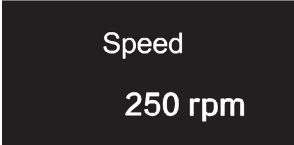



4.1 Start and stop operation

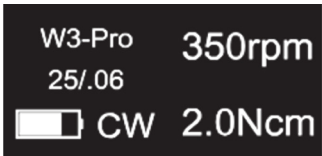

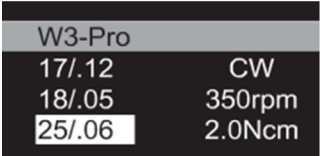
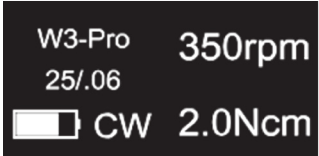

<p>The standby screen displays 'M0 250rpm' and 'CW 2.0Ncm' with a battery level indicator.</p>	<p>Press Main to turn on device to Standby screen</p> <p>Warning: In custom setting, all parameters should follow the file requirement for proper operation. Press Main to start motor</p>
<p>The operating screen shows a vertical scale from 1 to 5 Ncm. A horizontal bar is positioned at the 3 Ncm mark.</p>	<p>Operating screen Motor runs with set speed and torque Moving bars from bottom up shows the file torque. Press Main to stop motor</p>
<p>The standby screen displays 'M0 250rpm' and 'CW 2.0Ncm' with a battery level indicator.</p>	<p>Standby screen Hold "P" and press Main to turn off device</p>

4.2 Store setting on M0-9

M0-M9 is a memory program to store Operation mode and associated parameter.

 <p>M0 250rpm  CW 2.0Ncm</p>	<p>Standby screen Press “+”/”-“ to change screen among M0-9 Press “P” to show operating mode and available parameter.</p>
 <p>Operation Mode CW</p>	<p>Operating Mode Blinking is the current mode and ready to change Press “+”/”-“ to change among CW, CCW, REC, ATR Press “P” to show available parameters for selected mode Or press Main to exit to accept the mode without changing the parameters</p>
 <p>Speed 250 rpm</p>	<p>Parameter 1 Blinking is the current setting Press “+”/”-“ to change number (Press and hold “+”/”-“ speed up the number changing) Number reaching highest goes back to lowest. Vice versa. Press “P” to accept and go to the next available parameter Or press Main to accept and exit without going to next parameter</p>
 <p>Torque 2.0Ncm</p>	<p>Parameter 2 Blinking is the current setting Press “+”/”-“ to change number (Press and hold “+”/”-“ speed up the number changing) Number reaching highest goes back to lowest. Vice versa. Press “P” to accept and go to the next available parameter If no more available parameter, the screen goes back to mode screen. Steps can be repeated. Press Main to accept and exit without going to next parameter</p>


4.3 Store setting with build-in file system

	<p>Standby screen Press “+”/”-“ to change screen passing M0 or M9 The screen shows file name and size instead of M0-9 Keep pressing “+”/”-“ to show 5 storage locations. Select the location to make change Press and hold “P” to enter file list</p>
	<p>File list Press “+”/”-“ to scroll and select the file Press “P” to show list of pre-set parameters Or press Main to accept and exit without selecting parameters</p>
	<p>Pre-set parameters Press “+” / “-“ to scroll and select file size Press “P” to accept and back to File lists Or press Main to accept and back to standby</p>
	<p>Standby screen Parameters is set to file default parameter</p> <p> Warning: Changing the default parameter for selected file is not recommended. In the case that any parameter is changed, press and hold “P” to repeat steps to re-select the file.</p>

4.4 Set handpiece functions

Turn off device

Hold "P" and press Main to enter function setting

<p>Software Version</p> <p>V1.0.0</p>	<p>Software version (unchangeable) Screen show Auto Power Off in 2 sec</p>
<p>Auto Power OFF</p> <p>5 min</p>	<p>Auto Power Off Press "+"/"-" to change between 3 to 30 min Press "P" to accept and go to next setting or Press Main to accept and exit</p>
<p>Auto Standby Scr</p> <p>10 sec</p>	<p>Auto Standby Scr Press "+"/"-" to change between 3 to 30 min Press "P" to accept and go to next setting or Press Main to accept and exit</p>
<p>Dominant Hand</p> <p>Right</p>	<p>Dominant Hand Press "+"/"-" to switch between Left and Right Press "P" to accept and go to next setting or Press Main to accept and exit</p>
<p>Calibration</p> <p>OFF</p>	<p>Calibration Note: Calibration should be performed when replacing contra angle Press "+"/"-" to switch between ON and OFF Plug in original contra angle without file.</p> <p> Warning: Use original contra angle only. Any load applied to contra angle will be offset. And calibration will not be correct. Press "P" to accept and go to next setting or Press Main to accept and exit If set ON, calibration will be performed when exiting. And setting will then switch back to OFF.</p>

<p style="text-align: center;">Beeper Volume</p> <p style="text-align: center;">Vol.3</p>	<p>Beeper Volume Press “+”/“-“ to change volume between 0 (mute) and 3 (loudest) Press “P” to accept and go to next setting or Press Main to accept and exit</p>
<p style="text-align: center;">Restore Defaults</p> <p style="text-align: center;">OFF</p>	<p>Restore Defaults Press “+”/“-“ to switch between ON and OFF Press “P” to accept and go to next setting or Press Main to accept and exit If set ON, screen show OK and device reset to factory setting and setting will then switch back to OFF.</p>

5. Screen display


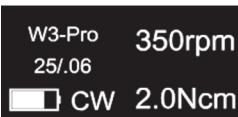
5.1 Standby Screens

There are a total of 15 standby screens.

Press “P” to select different standby screen: M0-9 and another 5 with no designation.

Standby screen M0-9, setting can be changed based on operating mode and parameters.

Standby screen after M9, additional 5 standby screens shows settings based on file system.

	<p>Location M0-9</p>	<p>battery level operating mode displayed setting displayed setting</p>
	<p>Location with file name and size</p>	

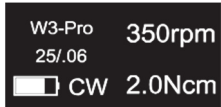

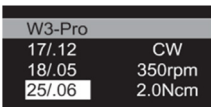
5.2 Mode setting screen

There are 4 operation modes.

	CW	CCW	REC	ATR
Mode	Clockwise	Counterclockwise	Reciprocating	Adaptive Torque Reverse
Motor direction	Clockwise only	Counterclockwise only	Clockwise and counterclockwise with set angle	Clockwise If torque exceed set limit, reciprocating
Applied file	Rotary	Special inject calcium hydroxide and other solutions	Reciprocating path rotary	Reciprocating
Displayed setting	<p>Speed: rpm 100–1200 @step50</p> <p>Torque: Ncm 0.4 0.6 0.8 1.0 1.2 1.5 1.8 2.0 2.2 2.4 2.5 2.8 3.0 3.5 4.0 4.5 5.0</p>	<p>Speed: rpm 100–1200 @step50</p> <p>Torque: Ncm</p>	<p>Forward angle: F° 20-400 @step10</p> <p>Reverse angle: R° 20-400 @step10</p>	<p>Speed: rpm 100–500 @step50</p> <p>Trigger Torque: Ncm 0.4 0.6 0.8 1.0 1.2 1.5 1.8 2.0 2.2 2.4 2.5 2.8 3.0 3.5 4.0</p>

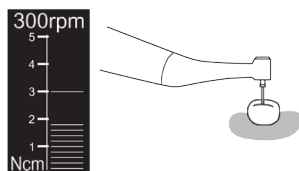
Setting			<p>Speed 250 rpm</p> <p>Speed: rpm 100-500 @step50</p> <p>Torque limit: 2.0Ncm</p> <p>Torque limit: Ncm 2.0 2.2 2.4 2.5 2.8 3.0 3.5 4.0 4.5 5.0</p>	<p>Forward Angle 30°</p> <p>Forward angle: F ° 60-400 @step10</p> <p>Reverse Angle 150°</p> <p>Reverse angle: R° (default 90 ° , <= F °) 20-400 @step10</p>
Note		For injecting calcium hydroxide and other medicant	<p>Recommend the difference between F.angle and R.angle at least 120 °</p> <p>if F.angle > R.angle, effective cutting angle on Forward angle Vice versa</p>	Reverse angle cannot be set larger than Forward angle
		Continuous double beeping during motor running		

5.3 File setting screen

Standby screen	File list	Default file size
	 List of available file for selection	 List of file size for selected file. Parameters are pre-set

5.4 Operating Screen

When motor is running, screen will show the set speed and set torque. The moving bars indicate the actual torque on the file during operation.



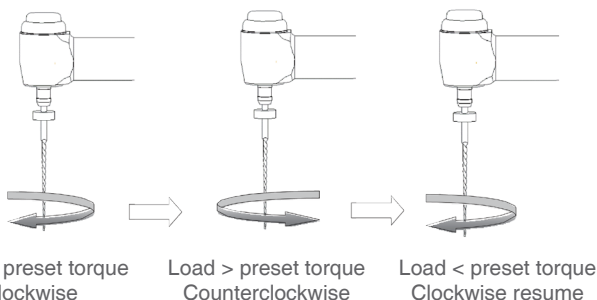
6. Automatic Reverse Function

Automatic reverse is only available in CW mode.

During operation, the motor is in clockwise rotation.

If the load at file exceeds the preset torque, motor will automatically reverse to counterclockwise.

Motor will resume clockwise rotation when torque is below preset torque.



Warning:

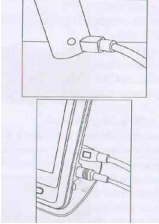


In low battery, motor cannot execute automatic reverse. It is advised that the handpiece should always be charged.

If automatic reverse is triggered frequently in the same operation, motor will overload and stop. If this occurs, please turn off device and allow motor to cool down.

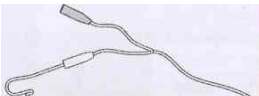
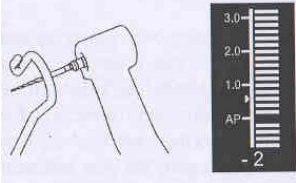
7. Apex Locator

ApexPilot G2 can be connected to Beyes Accurator A2, apex locator. During operation, as file reaches canal nerve, apex locator alarm will go off and G2 can stop or reverse motor according to defined setting.

Connecting to Accurator A2

	<p>Connect A2 and G2 with USB cable from package</p>
	<p>ApexPilot G2 shows connected when Accurator A2 is on and connected.</p>
	<p>Disconnected</p>

Test connection

	<p>Plug the lip hook into the white jack</p>
	<p>Touch the hook with the file in the contra angle</p> <p>Accurator A2 alarm goes off</p> <p>ApexPilot G2 screen shows AP and bars filling from top to bottom</p>

Operation

<p>The diagram shows two parts. The top part is a close-up of the canal length indicator bar, which has a scale from 3.0 to 1.0 and an 'AP' (Apical) mark. A vertical bar indicates the current position of the file. The number '02' is displayed on the left. The bottom part shows the ApexPilot G2 motor unit connected to a handpiece.</p>	<p>Canal length indicator bar shows progression towards the apex.</p> <p>As file reaches the apical foramen, the indicator will show full bars and "00".</p> <p>Note: Indicator and number do not represent the actual length the file from the apical foramen</p>
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When working with Accurator A2, ApexPilot G2 motor will respond differently according to the setting.

<p>Apical Action</p> <p>OFF</p> <hr/> <p>Apical Action</p> <p>Reverse</p> <hr/> <p>Apical Action</p> <p>Stop</p>	<p>Apical Action</p> <p>OFF – motor stays same operating mode</p> <p>Reverse – motor turns CCW</p> <p>Stop – motor stops</p>
<p>Auto Start</p> <p>ON</p> <hr/> <p>Auto Start</p> <p>OFF</p>	<p>Auto Start</p> <p>Motor initially stops</p> <p>When apex alarm goes off, motor starts according to operating mode</p>
<p>Auto Stop</p> <p>ON</p> <hr/> <p>Auto Stop</p> <p>OFF</p>	<p>Auto Stop</p> <p>When apex alarm goes off and turns off, motor stop in 1 sec.</p> <p>This function only works when Auto Start is ON</p>

Apical Slow Down OFF	Apical Slow Down Motor speed slow down when apex alarm goes off
Apical Slow Down ON	

Table shows G2 responses to apex alarm for different mode and settings.

Mode	Apical Action	Auto Start	Auto Stop	Apical Slow Dwn	Motor Status		
					Initial	Apex alarm on	Apex alarm off
CW	OFF	*	*		CW	CW	CW
		*	*	√		CW low speed	CW
		√			Stop	CW	CW
		√		√		CW low speed	CW
		√	√	√		CW	CW stop in 1 sec
		√	√	√		CW low speed	CW stop in 1 sec
	Reverse	*	*		CW	CCW double beeping	CW
		*	*	√		CCW double beeping low speed	CW
		√			Stop	CCW double beeping	CW
		√	√			CCW double beeping	CW stop in 1 sec
		√		√		CCW double beeping low speed	CW stop in 1 sec
		√	√	√		CCW double beeping low speed	CW stop in 1 sec

CW	Stop	*	*	*	CW	stop	CW
		√		*		stop	CW
		√	√	*	Stop	stop	CW stop in 1 sec
CCW					CCW	CCW double beeping	CCW
				√	CCW	CCW double beeping low speed	CCW
REC	OFF	*	*		REC	REC	REC
		√			Stop	REC	REC
		√	√			REC	REC stop in 1 sec
	Reverse	*	*		REC	CCW double beeping	REC
		√				CCW double beeping	REC
		√	√		Stop	CCW double beeping	REC stop in 1 sec
	Stop	*	*		REC	Stop	REC
		√			Stop	Stop	REC
		√	√		Stop	Stop	REC stop in 1 sec

ATR	OFF	*	*		ATR	ATR	ATR
		√			Stop	ATR	ATR
		√	√			ATR	ATR stop in 1 sec
	Reverse	*	*		ATR	CCW double beeping	ATR
		√			Stop	CCW double beeping	ATR
		√	√			CCW double beeping	ATR stop in 1 sec
	Stop	*	*		ATR	Stop	ATR
		√			Stop	Stop	ATR
		√	√			Stop	ATR stop in 1 sec

√ on

(Blank) off

* on/off

8. Troubleshooting

Failure	Possible cause	Solutions
Continuous beeping after starting the motor handpiece	The continuous beeping indicates that the motor handpiece is under CCW mode.	Stop the motor handpiece and change the operating mode to CW Mode.
Contra angle calibration failure	Calibration failure caused by strong resistance of contra angle	Clean the contra angle, and recalibrate after lubricating
Motor handpiece heating	Extended usage of Reciprocating Motion Mode	Stop usage and wait until temperature of handpiece cools down
The time of endurance becomes shorter after charging	Battery capacity is reduced	Please contact local distributor or manufacturer
No sound	Beeper Volume set to 0. Vol.0: Mute.	Set Beeper Volume to 1,2,3.
The continuously rotating file is stuck at the root canal	Incorrect specification setting. The load torque of file is too high.	Choose CCW Mode, start the motor handpiece, and take the file out.

9. Cleaning, Disinfection and Sterilization

9.1 Foreword

For hygiene and sanitary safety purposes, the contra angle must be cleaned, disinfected and sterilized before each usage to prevent any contamination. This concerns the first use, as well as all subsequent uses.

9.2 General recommendations

6.1.1 Use only a disinfecting solution which is approved for its efficacy (VAH/DGHM-listing, CE marking, FDA and Health Canada approval) and in accordance with the DFU of the disinfecting solution manufacturer.

6.2.3 Do not place the contra angle in a disinfectant solution or in an ultrasonic bath.

6.2.4 Do not use chloride detergent materials.

6.2.5 Do not use bleach or chloride disinfectant materials.

6.2.6 For your own safety, please wear personal protective equipment (gloves, glasses, mask).

6.2.7 The user is responsible for the sterility of the product for the first cycle and each further usage as well as for the usage of damaged or dirty instruments where applicable after sterility.


6.2.8 The water quality has to be convenient to the local regulations especially for the last rinsing step or with a washer-disinfector.

6.2.9 Do not sterilize the motor handpiece, the AC adapter or the base. After each use, all the objects that were in contact with infectious agents should be cleaned using towels impregnated with a disinfecting and detergent solution (a bactericidal, fungicidal and aldehyde free solution) approved by VAH/DGHM-listing, CE marking, FDA and Health Canada.

6.2.10 To sterilize the endodontic files, refer to the manufacturer's instructions for use.

6.2.11 The contra angle needs to be lubricated after cleaning and disinfection, but before sterilization.

9.3 Step-by-Step Procedure

#	Operation	Operating Mode	Warning 
1	Preparation	Remove the contra angle from handpiece and base.	
2	Automated Cleaning with washer-disinfector	Put the contra angle into the washer disinfector (Ao value >3000 or, at least 5 min at 90°C/194°F)	<ul style="list-style-type: none"> - Avoid any contact between the contra angle and any instruments, kits, supports or container. - Follow instructions and observe concentrations given by the manufacturer (see also general recommendations).- Use only approved washer-disinfector according to EN ISO 15883, maintain and calibrate it regularly. - Make sure the contra angle is dry before moving to the next step.
3	Inspection	Inspect the contra angle and sort out those with defects.	<ul style="list-style-type: none"> - Dirty contra angle must be cleaned and disinfected again. - Lubricate the contra angle with an adequate spray before packaging.
4	Packaging	Pack the contra angle in "Sterilization pouches".	<ul style="list-style-type: none"> - Check the validity period of the pouch given by the manufacturer to determine the shelf life. - Use packaging which is resistant to a temperature up to 141°C (286°F) and in accordance with EN ISO 11607.

5	Sterilization	Steam sterilization at 134°C, 2.0bar-2.3bar(0.20Mpa-0.23MPa), for 4 minutes.	<ul style="list-style-type: none"> - Use only autoclaves that are matching the requirements of EN 13060, EN 285. - Use a validated sterilization procedure according to ISO 17665. - Respect the maintenance procedure of the autoclave device given by the manufacturer. - Use only this recommended sterilization procedure. - Control the efficiency (packaging integrity, no humidity, color change of sterilization indicators, physico- chemical integrators, digital records of cycles parameters). - Maintain traceability of procedure records.
6	Storage	Keep the contra angle in sterilization packaging in a dry and clean environment.	<ul style="list-style-type: none"> - Sterility cannot be guaranteed if packaging is open, damaged or wet. - Check the packaging and the contra angle before using it (packaging integrity, no humidity and validity period).

10. Storage, maintenance and transportation

10.1 Maintenance

- This device do not include accessories for repair usage, the repair should be carried out by an authorized personnel or authorized repair center.
- Keep the equipment in a dry storage condition.
- Do not throw, beat, or shock the equipment.
- Do not smear the equipment with pigments.
- Calibration is recommended when using a new/other contra angle or after an extend period of operation, as the running properties can change with usage, cleaning and sterilization.
- Replace the battery if it seems to be running out of power sooner than it should.

10.2 Replacing Battery

Please use the original lithium battery.

1. Turn the motor handpiece power off
2. Use tweezers to remove soft cover
3. Unscrew and remove the battery cover
4. Disconnect battery
5. Replace with new battery
6. Put cover back and screw in

Note: It is recommended for you to contact your local distributor or manufacturer to replace the battery.

10.3 Lubrication of contra angle

Use the oil injection nozzle in the package

The contra angle needs to be lubricated after cleaning and disinfection, but before sterilization.

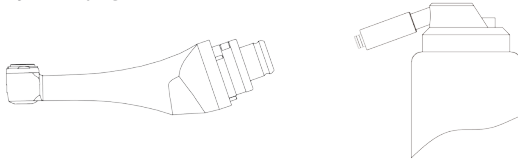
1. Screw injecting nozzle into jet of oil bottle. (Around 1 to 3 circles)
2. Plug nozzle into the end part of contra angle
3. Spray oil into the contra angle for 2-3 secs until the oil flows out of contra angle head
4. Purge excess oil from the end part of contra angle using air or keep contra angle in a vertical position for gravity draining.

Warning

Motor handpiece should not be filled with oil.

Caution

- Hold the contra angle head securely to prevent it from flying off from the air pressure of the spray
- Do not use a swirling nozzle.
- Hold the spray can upright.





11. Environmental protection

Please dispose according to your local state regulations.


12. Signs

 Follow Instructions for Use

 Date of manufacture


 Type B applied part

 Ordinary equipment

 Used indoor only

 Handle with care

 Humidity limitation
93 %
10 %

 Atmospheric pressure for storage
106kPa
70kPa


 Serial number

 Manufacturer

 Class II equipment

 Recovery

 Keep dry

 Appliance compliance WEEE directive

 Temperature limitation
55°C max
-20°C min

13. Statement

All rights of modifying the product are reserved to the manufacturer without further notice. The pictures are only for reference. The final interpretation rights belong to Beyes Dental Canada Inc. The industrial design, inner structure, etc, have claimed for several patents by Beyes, any copy or fake product must undertake legal responsibilities.

14. Beyes Limited Warranty Statement

From purchase date, based on warranty registration, we will repair this equipment free of charge if there are any quality issues experienced. Please refer to the warranty card for the warranty period.

14.1 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.

14.2 APPLICABLE WARRANTY PERIOD

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

ApexPilot G2 Endo Motor are warranted for a period of 12 months

14.3 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.

14.4 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.

14.5 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.

14.6 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.

15. Technical Specification

Technical parameters

Device Classification	Class II Type B IPX0	
Applied part	Contra angle	
Power supply	Class II	
	Input	100V-240V 50Hz/60Hz
	Output	DC5V/1A
Battery capacity	3.7V 2000mAh	
Wireless charging	Freq 112 – 205kHz max RF output power 9.46dBuA/m@3m	
Torque	0.4 – 5 Ncm	
Speed	100 – 1200 rpm	

Environmental parameters

	Working	Storage
Temperature	+5°C~+40°C	-20°C~ +55°C
Humidity	30%~75%	10% ~ 93%
Air pressure	70kPa~106kPa	70kPa ~ 106kPa

Warning:

Do not device in extreme temperature and humidity.

16. EMC-Declaration of conformity

This device is tested and in compliance with EN60601-1-2 for EMC.

Note:

Operating this device under high electromagnetic environment is not recommended.

Technical Description Concerning Electromagnetic Emission Table 1: Declaration - electromagnetic emissions.

**Technical Description Concerning Electromagnetic Emission
Table 1: Declaration - electromagnetic emissions**

Guidance and manufacturer's declaration - electromagnetic emissions		
The model ApexPilot G2 is intended for use in the electromagnetic environment specified below. The customer or the user of the model ApexPilot G2 should assure that it is used in such an environment.		
Emissions test	Compliance	Electromagnetic environment -guidance
RF emissions CISPR 11	Group 1	The model ApexPilot G2 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 CISPR11	Class B	The model ApexPilot G2 is suitable for used in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations / flicker emissions IEC 61000-3-3	Complies	

Technical Description Concerning Electromagnetic Immunity

Table 2: Guidance & Declaration - electromagnetic immunity

Guidance & Declaration — electromagnetic immunity			
The model ApexPilot G2 is intended for use in the electromagnetic environment specified below. The customer or the user of the model ApexPilot G2 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 $\pm 2, \pm 4, \pm 8, \pm 15$ kV air	± 8 kV contact $\pm 2, \pm 4, \pm 8, \pm 15$ 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 %.
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	Voltage should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	$\pm 0.5, \pm 1$ kV line to line $\pm 0.5, \pm 1, \pm 2$ kV line to earth	$\pm 0.5, \pm 1$ kV line to line $\pm 0.5, \pm 1, \pm 2$ kV line to earth	Voltage should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	< 5 % UT (> 95 % dip in UT.) for 0.5 cycle < 5 % UT (> 95 % dip in UT.) for 1 cycle 70% UT (30% dip in UT) for 25 cycles < 5 % UT (> 95 % dip in UT) for 250 cycles	< 5 % UT (> 95 % dip in UT.) for 0.5 cycle < 5 % UT (> 95 % dip in UT.) for 1 cycle 70% UT (30% dip in UT) for 25 cycles < 5 % UT (> 95 % dip in UT) for 250 cycles	Voltage should be that of a typical commercial or hospital environment. If the user of the models ApexPilot G2 requires continued operation during power mains interruptions, it is recommended that the models ApexPilot G2 be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	30A/m	30A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE UT is the a.c. main voltage prior to application of the test level.			

Table 3: Guidance & Declaration - electromagnetic immunity concerning Conducted RF & Radiated RF

Guidance & Declaration - Electromagnetic immunity			
The model ApexPilot G2 is intended for use in the electromagnetic environment specified below. The customer or the user of the models ApexPilot G2 should assure 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 Conducted RF IEC 61000-4-6 Radiated RF IEC 61000-4-3	3 Vrms 150 kHz to 80 MHz 6 Vrms ISM frequency band 3 V/m 80 MHz to 2.7 GHz	3V 6V 3V/m	Portable and mobile RF communications equipment should be used no closer to any part of the models ApexPilot G2, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance $d=1.2 \times P^{1/2}$ $d=2 \times P^{1/2}$ $d=1.2 \times P^{1/2}$ 80 MHz to 800 MHz $d=2.3 \times P^{1/2}$ 800 MHz to 2.7 GHz 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:
<p>NOTE 1 At 80 MHz end 800 MHz. the higher frequency range applies.</p> <p>NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.</p>			

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 ApexPilot G2 is used exceeds the applicable RF compliance level above, the model ApexPilot G2 should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the model ApexPilot G2.

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

Table 4: Recommended separation distances between portable and mobile RF communications equipment and the model ApexPilot G2

Recommended separation distances between portable and mobile RF communications equipment and the model ApexPilot G2			
The model ApexPilot G2 is intended for use in electromagnetic environment in which radiated RF disturbances is controlled. The customer or the user of the model ApexPilot G2 can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the model ApexPilot G2 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 transmitterm		
	150kHz to 80MHz $d=1.2 \times P^{1/2}$	80MHz to 800MHz $d=1.2 \times P^{1/2}$	800MHz to 2,7GHz $d=2.3 \times P^{1/2}$
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 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) accordable 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.			



Federal law restricts this device to sale by or on the order of a dentist, physician, or any other practitioner licensed by the law of the states in which he or she practices to use or order the use of this device.

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Printed in Canada
ENI031
Rev. 1/23.03.21