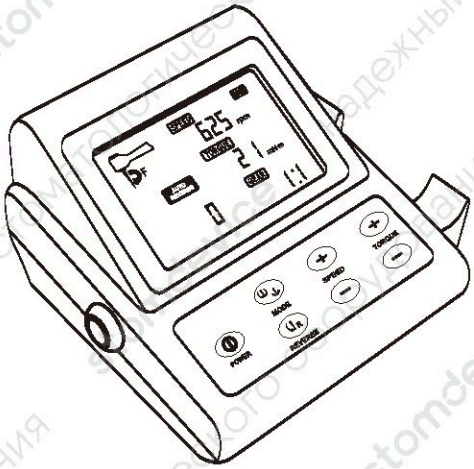
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Endo Motor

USERS GUIDE

C-SMART+



Ver1.1 Revision Date:2017-06-16

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Content

1. Safety caution 1
2. Intended use 2
3. Standard configuration 2
4. Structure and function 3
5. Installation 6
6. Use method 7
7. Maintenance 11
8. Sterilization 11
9. Troubleshooting 12
10. After service 13
11. Specifications 13
12. Transportation and storage 13
13. Mark illustration 14

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Symbols and definition


Class II equipment(Adaptor)


Direct current


Type B equipment


Caution! Please read the instruction


Used indoor only


This way up


Fragile,handle with care


Keep away from rain


CE marked product


WEEE


Please refer to the instructions

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Safety caution

Before use, please read the security instruction carefully for which is able to facilitate the users to make good use of this instrument.

1. This unit must be used as the user's guide mentions, not for other purpose. Please refer to the usage instruction strictly. We won't take the responsibility for the damage caused by improper use.
2. Before using the main power, make sure the power voltage is according with the adaptor voltage range. Improper input voltage will damage the unit and cause danger to the operator or the patient.
3. Do not drag the wire which connects to the endo motor emphatically. Or it would be broke or be loosened and then affect the natural use.
4. Please use the original accessories, such as: endo motor, adaptor,and battery. We won' t take the responsibility to any problem or damage caused by using other parts which are not supplied by us.
5. To avoid electric shock, don't insert any other parts into the unit; it may cause electric shock or damage.
6. Avoid the detergent go into the unit, in case that causes the short circuit or problem.
7. Please turn off the instrument at once when something wrong with it. It's not allowed to modify the unit at any condition. Any disassembling or modification will cause the invalidation of the guarantee.
8. Please use the intact standard file. Or it would cause damage to the patient while working.
9. The instrument has an electromagnetism disturbance. When there is a patient who is using the cardiac pacemaker, or there is an electronic operation, please don't put the machine around.
10. Unstable voltage and if it's in electromagnetic environment will interfere the normal operation.
11. When discard the accessories, please abide with the local regulation, if necessary, contact our service center to recover it.
12. This unit just for the user of professionals.

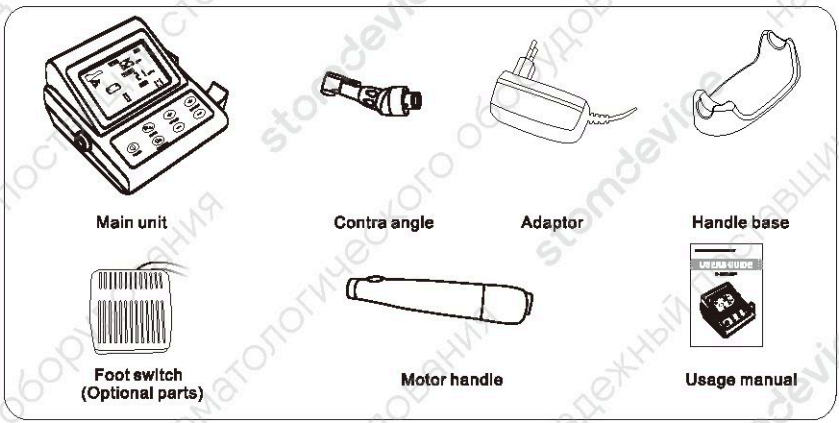
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Intended use

C-Smart+ is the supplementary root-canal treatment device which can assist the dentists to shape more standard root-canal in the process of root-canal treatment.

Standard configuration

Main unit	1
Adaptor	1
Motor handle	1
Contra angle	1
Foot switch--(Optional parts)	1
Handle base	1
Usage manual	1
Torque setting card	1



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Guarantee

The main unit are guaranteed for 24 months from the date of purchase. The accessories (contra angle, motor handle, file holder, adaptor, foot switch, test wire and lip hook line)are guaranteed for 6 months. The guarantee is valid for normal usage conditions. Any modification or accidental damage will render the guarantee void.

Technical services

1. Power adaptor: Input: 100-240 Vac 50/60Hz
   Output: DC 10V/1.5A
2. Battery Voltage: DC 7.4V
   Capacity: 1000 mAh
3. Rotation speed: 125rpm、250rpm、375rpm、500rpm、625rpm
4. Torque 0.3-5.2N.cm (3-52N.m)
5. Temperatures Operating: +10℃～+40℃
   Storage: -10℃～+55℃
6. Humidity Operating: 30~75%RH
   Storage: 20~85%RH
7. Atmospheric pressure Operating: 80~106kPa
   Storage: 50~106kPa
8. Protection against electrical shock: Type B

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Troubleshooting

If the equipment is not normal work, before call our after-sales center, please check the table below.

Trouble	Reason	Settle methods
Can not turn on	Lack of power	Charge the battery or use the main power
Motor not work	Foot switch bad contact	Contact the wire and make sure the foot switch can work smoothly
	Over torque	Exit the auto reverse mode by press the motor button or loosen the foot switch.
Short using time of the battery	The battery is not charge enough	Try to charge the battery long up to 4 hours each time
	Battery ageing	Change the battery or use the main power

Warranty

Our company is responsible for product and technology service.

Our experienced technician will offer you technical support when technical problem occurs.

The main unit are guaranteed for 24 months from the date of purchase.

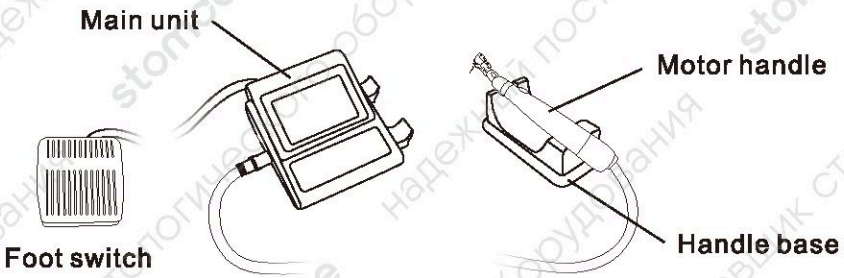
The guarantee is valid for normal usage conditions.

Any modification or accidental damage will render the guarantee void.

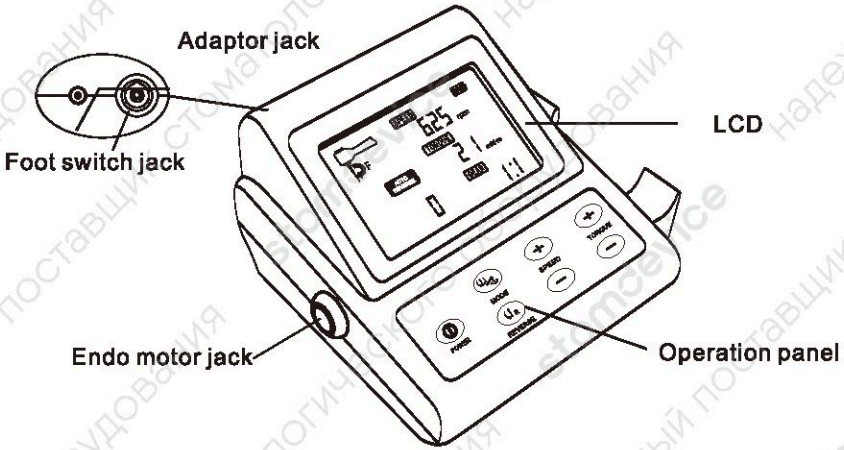
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Construction and installation

This product is consist of main unit, foot switch(Optional parts), handle,handle base and so on.

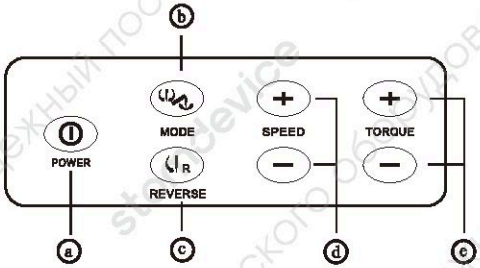


4.1 Structure and theory - main unit



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Key and Display:



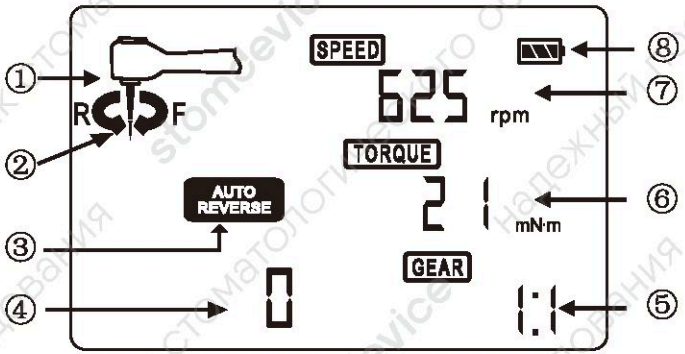
ⓐ POWER key

ⓑ MODE key

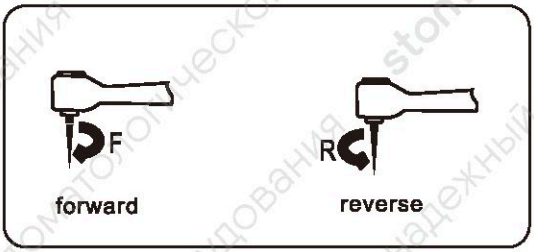
ⓒ REVERSE key

ⓓ SPEED ADJUST key

ⓔ TORQUE ADJUST key



① Rotation direction sign: display ***F*** for forward and ***R*** for reverse;



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Maintenance

1. If not use for long time, please open the battery cover open and remove the battery, keep the instrument and store it somewhere dry and clean.

2. Parts like contra angle which have direct contract which the patient should be disinfected by autoclave each time after used.

3. The crust of the instrument and the wire should be dinfected by the ethanol.

Sterilization

1. Please use the brush (not metal brush) to clean the attached dirt not the handpiece surface;

2. Lubricant the Contra angle from inside; (Contra angle maintenance methods)

* Please do not oil the motor.

* Install the anti-steam dossil to the motor.

3. Put into the bag and seal for the sterilization;

4. Use the temperature which is not more than 135℃ to sterilize.

ex.) Autoclave for 20 min. at 121℃ , or 15min at 135℃.

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6.2 Power manage

1. Battery power

LCD displays the current battery power, the number of lattice shows more, and the power is fuller, If there is no electricity the lattice will flicker, which means the battery power is about to run out, at this status the beeper will ring per 3S, and unit will shut down after 60S.

2. Battery recharging

To fully recharge the battery, you should connect the unit to adaptor at least for 4 hours or more (The new battery requires at least 8 hours or more), the sign will be running during the battery charging.

Notice:

When the instrument is connected to the adaptor, the beeper will beep for three times, showing the connection is correct.

3. Supply by main power

Please connect instrument to adaptor when the battery power is not enough. When the connection is completely, the instrument will be supplied by the main power and charging the battery automatically.

4.Automatic power off

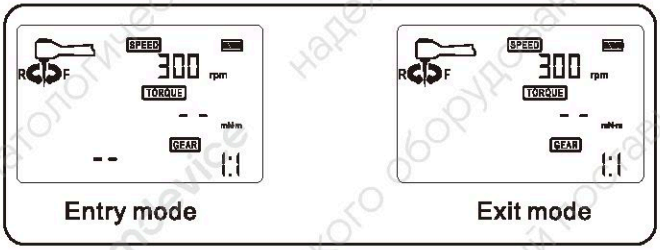
The instrument will shut down automatically when it ceases working for 3 minutes. In that case, all display and function will stop.

Notice:

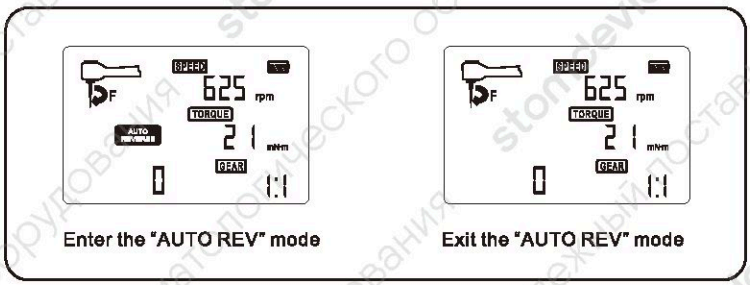
When power off, the LCD will show recharging sign when charging.

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② Reciprocating rotation mode: press the ***MODE*** button to switch to mode of reciprocating, stamp the foot switch or press start button with the motor handle, starts to reciprocating rotation, Under the condition of rotationreverse 150 °,is turn 30 °, the speed of about 300 RPM. Loosen the foot switch or press the handle button, will stop running;



③ Auto reverse mode: when press the MODE key unit enter this mode, file can forward and reverse automatically refer on the torque, Press MODE key again, unit will exit this mode;

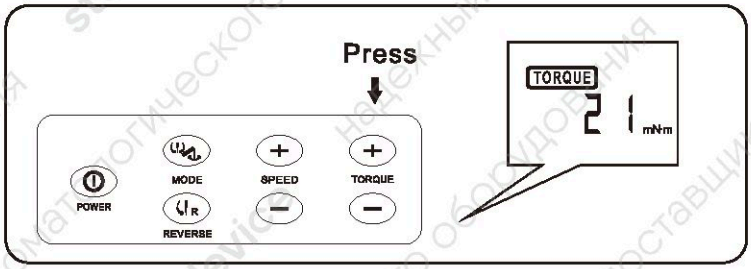


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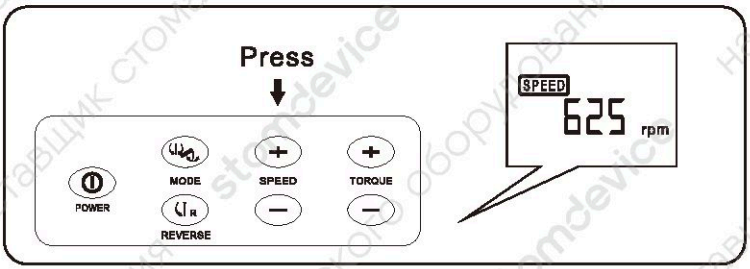
④ Torque display: display the current torque;

⑤ Gear display;

⑥ Torque: display the limit torque; dentist can adjust torque by press "TORQUE+" or "TORQUE+" key;



⑦ Speed: display the current speed; dentist can adjust speed by press "SPEED+" or "SPEED+" key;



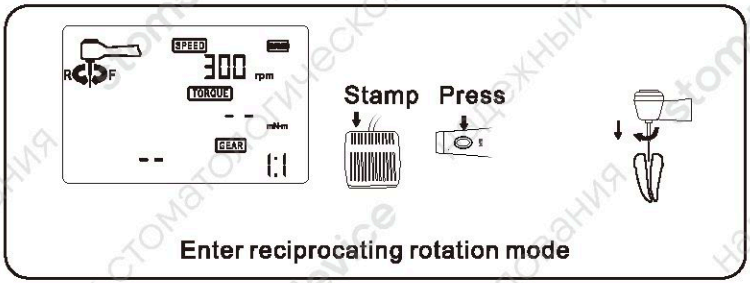
⑧ Battery power sign.

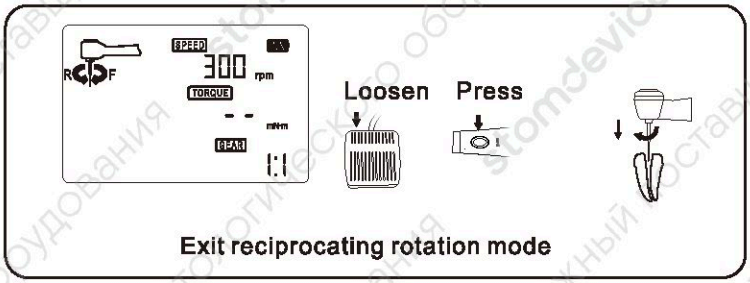
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Attention:

Foot switch takes precedence over the handle button, when stamp on the foot switch in working state, the handle button can not stop the file rotation; when press the button in working state, you can stop the file by stamping on the foot switch.

9. Reciprocation rotation mode: stamp the foot switch or press the handle button, the file starts to reciprocating rotation, Under the condition of rotation reverse 150° , is turn 30° , the speed of about 300rpm.

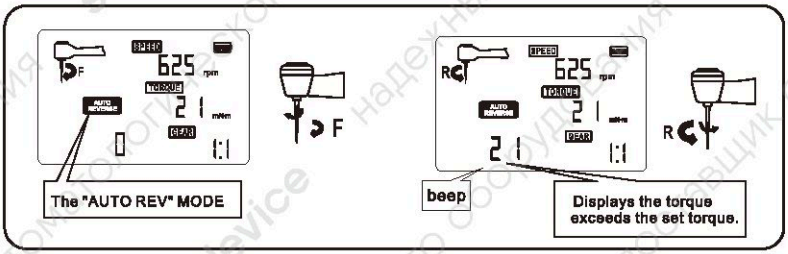




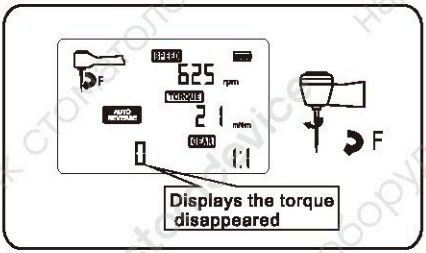
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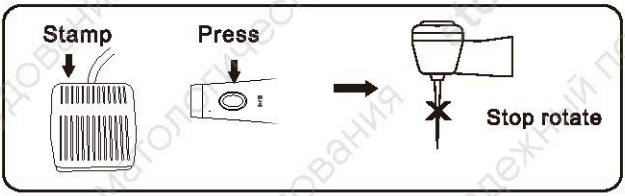
7. Press MODE key, "AUTO REVERSE" will displayed on LCD, and it means unit enters auto reverse mode, at this status file will reverse to advoid the break-off when the torque exceed the regulated values and will rotate forward when the torque is disappeared.

Press MODE can be exit.



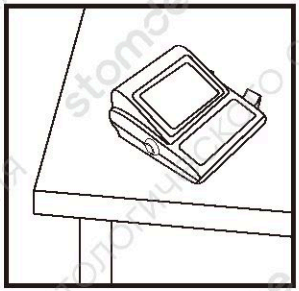
8. Stamped the foot switch or press the handle button, file will stop working.



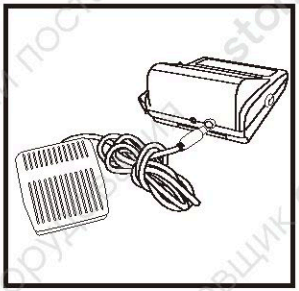


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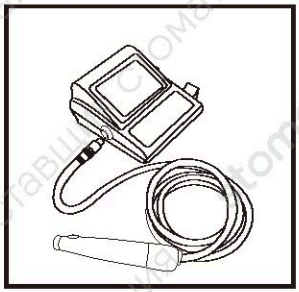
Installation



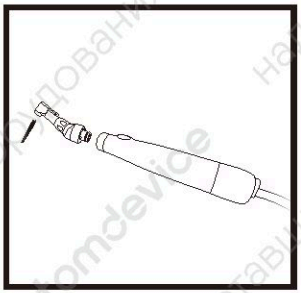
1. Please put the instrument on a solid place.



2. Insert the foot switch plug into the jack on the main unit.

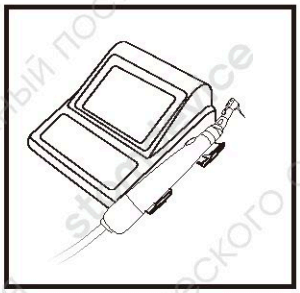


3. Connect the plug of the motor wire to the main unit , make sure that they are in the right position.

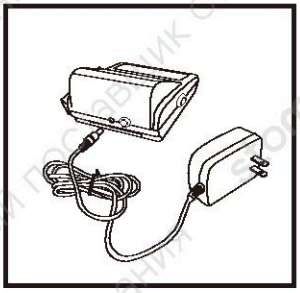


4. Connect the contra angle to the motor and clamp the file into the contra angle.

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5. And then put the well connected main unit on the handle holder reposefully.



6. Insert the adaptor plug into the jack on the main unit

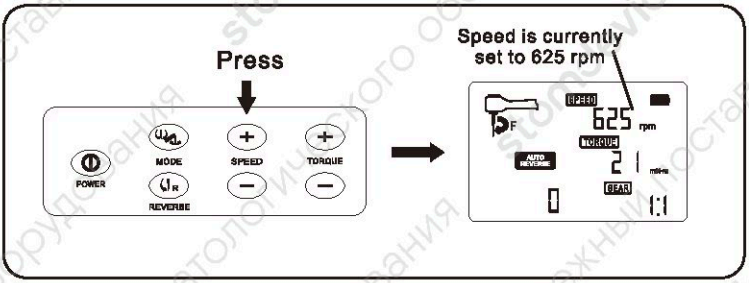
Use method

6.1 Endodontic treatment

1. Components ensure the reliable connection;

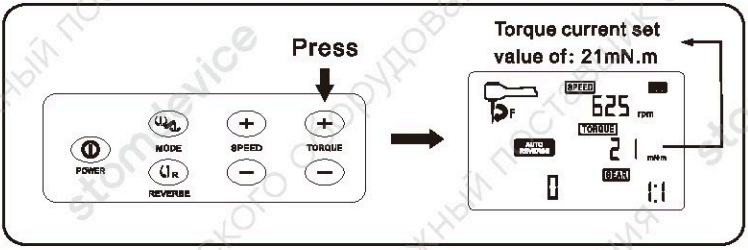
2. Press "POWER" key , unit enter idle status;

3. You can select proper speed based on different need: press "SPEED+" or "SPEED-" key, The speed range: 125rpm、250rpm、375rpm、500rpm、625rpm;

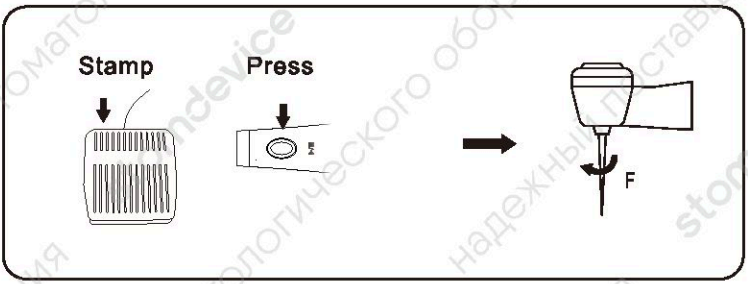


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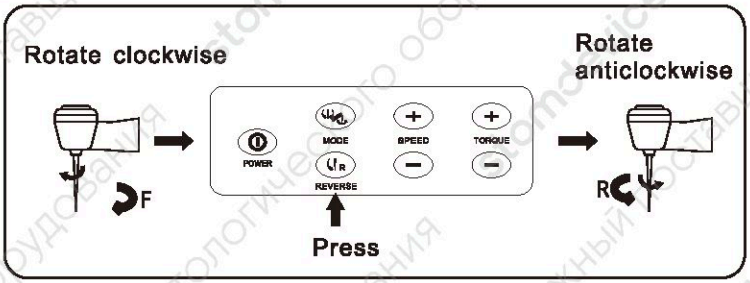
4. You can adjust torque: press "TORQUE+" or "TORQUE-" , the torque range: 3、6、9、12、15、18、21、25、30、35、40、45、52 mN.m ;



5. When stamped the foot switch or pressed the button with motor handle, file will rotate clockwise according to the speed has been set.



6. When file is clockwise rotation, press "REVERSE" key, file will rotate counter-clockwise immediately, press the button repeat, file will change direction.



*** You can adjust speed by press "SPEED+" or "SPEED-" button when endo motor is working.**

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