



R-100350




## Intended use

TRAUS ENDO is wireless handpiece for root canal treatment. This device can be used at hospital, clinic, or dental office by dentist. Read this introduction manual carefully before use, and keep it for future reference. The specification or the design of the product can be changed without notice.

## Warning

- Please use the product properly after read the warning carefully.
- Please follow the warning signs to use safely and to prevent injury or damage of users and others.
- Class II equipment

### Warning signs

Classification	Risk lever
 <b>Warning</b>	When user does not follow the Warning sign, it might cause serious injury or death.
 <b>Precaution</b>	When user does not follow the Precaution sign, it might cause light injury or product damage.
 <b>Caution</b>	The Notice is to notify mandatory for safety.

### **Warning**

- Only rechargeable battery (Ni-MH battery) can be used. Do not use manganese and alkaline battery. Misuse of the battery might cause leakage or damage.
- Do not touch the AC power plug with wet hands.
- Do not drop any kind of liquid on the motor handpiece and adapter. The short circuit may cause fire, electric shock or corrosion of the product.
- Do not drop the motor handpiece or adapter. Install adapter on the flat and safe place.
- When the battery is leaking, be careful to not spatter into your eyes. It can cause blindness. Wash the fluid off with clean water promptly and consult with doctor.
- When the battery is leaking, be careful to not spatter on your skin or cloth. It can cause skin problem. Wash the fluid off with clean water promptly and consult with doctor.
- When the motor handpiece is leaking, or appearance of motor handpiece has been changed, or motor handpiece is discolored, stop to use it and contact to seller.
- If the product is not used for long period, please remove the battery from the device. Otherwise, it has possibility of leakage.
- Please use and replace the same kind of batteries at the same time. Otherwise, it may cause battery leakage or damage.

- Please use the designated battery and charger for the product.
- Do not disassemble or change the motor.
- If the product is used near electromagnetic interference environment, the system might be damaged.
- Do not use the product near the flammable product or nitrous oxide.
- The product has circuit which can protect file damage, but the file can be damaged by strong torque or resistance.
- Please do not leave the child alone with the product and place the product out of reach of children, old, and disabled person.
- Do not let patient to touch signal input, signal output, and other connecting parts.
- External equipment that is connected to signal input, signal output, and other connecting parts should comply with the IEC standard (e.g. IEC60950 for IT equipment, and IEC60601-1 or standard IEC60601-1 series for medical electrical equipment). If have any questions, contact qualified technician or your local agency.



### **Precaution**

- The motor handpiece designed as Ni-MH battery (rechargeable). Also, the Ni-cd battery is possible to use but the charge and use period can be extremely short because the charge current is different.
- Generally, rechargeable battery is gradually discharged even if the motor handpiece is not being used. Thus, please recharge the battery before use.
- The company did not sterilize the product. Please be sure to sterilize before operation. (User sterilization)
- The machine has the sensor against low voltage, but the sensor might fail to notice low voltage when turn on the device again. It is usual for a few minutes.
- Repetitive short time use and recharge might result in short life of battery. Thus, recharge the battery after the battery is fully discharged. It makes better condition of the battery.
- If the product is not being used for long period, please remove the battery from the product.



### **Caution**

- Safety of patient is always the first.
- Only qualified person in dental surgery can be allowed to use the product.
- Please purchase the recommended batteries.
- If files are bended, damaged, deformed, or not in ISO standard, do not use them. Otherwise, it may result in personal injury by fragment.
- Do not place or maintain the battery in high temperature environment such as the place that is exposed to direct sunlight, inside of car in high temperature, or near the stove and fire.

- Keep cleaning the bur and files. Otherwise, the chucking power will be poor and vibrations can occur during operation.
- User has responsibility to operate, maintain, and inspect.
- Application of machine is restricted by this manual. Avoid not recommended application.
- If user does not comply with the instruction manual, it might cause property damage and injury, and manufacturer does not have any responsibility for that.
- Please maintain the recommended speed of tool by tool manufacturer. Otherwise, it can cause an accident.
- Use certified products and consumables by manufacturer. Otherwise, it can cause an accident or failure of the device.
- Operating condition:
  - Temperature: 10°C ~ 30°C
  - Humidity: 10% ~ 80%
  - Atmospheric Pressure: 700 ~ 1,060hpa
- The temperature of the handpiece goes up to max. 41°C when atmosphere temperature is 30°C.
- Turn off the power of the motor handpiece to change the head or file. Otherwise, it may cause unintended rotation by accidental activation of the ON/OFF button.
- When inserting the motor handpiece into the battery charger, position the handpiece correctly. If you insert it by force in incorrect direction, products may be damaged.
- Do not insert the needle or pin into the charging terminal of the battery charger.
- Place the motor handpiece into the charger after clean the liquid or dust off. If the charging terminal is in dirty, it can be rusted and cannot be charged properly.
- Do not lubricate the motor handpiece.
- Do not do heat sterilize the motor handpiece. Do not autoclave the motor handpiece.
- **Electric safety**
  - If there are some faults in electric cord, plug and connector, do not use machine. Otherwise, it might cause fire and electric shock. Do not unplug with wet hand. Whenever the plug is unplugged, please grab the plug body. Do not bend electric cord excessively. Do not put heavy material on the electric cord.
  - Never fail to use outlet which is equipped with earth connection, and please be instructed how to install the earth connection from manufacturer or technicians.
  - Do not plug several plugs in the socket. It might cause fire and electric shock.
  - Before use, please check the control unit has set the gear ratio to match with the gear ratio in the contra angle.
  - If the speed of motor is too fast or stopped during operation, please contact dealer.
  - Be careful to not drop or damage the motor and contra angle handpiece. Do not operate the product if product is abnormal after drop on the

floor or water, and contact the manufacturer or dealer. That case may cause bur vibration, excessive heat and damage to the ball bearing.

- Before use, make sure that the correct reduction for the contra-angle has been selected in the control unit.
- If the speed is too high or too low, contact the technical service.
- Be careful if you use the appliance after it has been dropped or wet. Vibrations, excessive heat and damage to the bearings could occur.
- Prevent children or non-specialized personnel from tampering with the appliance.
- Do not disassemble, repair or modify the device.
- Contact your distributor for questions or detailed information on problem solving.
- **Disposal**
  - When disposal of control units, be sure to keep regulations which stipulate disposal of industrial waste.
  - When disposal of motor and handpiece, be sure to keep regulations which stipulate disposal of medical waste.
  - Used battery is recommended to be back to supplier because the battery of the product which is Nickel Metal Hydride (rechargeable) is special way to dispose in some country.

## Classification

- Type and degree of protection against electric shock: **Class II/Type BF**
- Degree of protection against water (Protection against vertical water drop): **IPX 0**.
- Machine should not be used at the place close to flammable anesthetics and oxygen.
- Operation mode: intermittent load in successive operation.
- Operation time: operate maximum **3** min.
- Rest time: minimum **10** min.

The machine has been confirmed that it complies with the rules of medical machinery IEC 60601-1-2007 which provides reasonable protections against harmful interference in typical medical installations. The machine can radiate radio frequency energy. If do not install or use in accordance with the instruction, it might cause harmful interference to other devices in the vicinity. However, it is not assured that it will occur to a particular installation.

## Features

- Simple interface design for easy control.
- Freedom of activity during operation by wireless handpiece.
- Ergonomic and compact body.

### <Endo mode>

- Speed: 100 ~ 600 rpm ( $\pm 10\%$ )
- Torque: 1 ~ 4 N·cm
- Gear ratio: 20:1
- Rotate mode: level 1, 2

### <Program function>

- 5 memory programs of (Gear Ratio, Torque, RPM, Direction mode) are available to set.

### <Setting torque limit function >

- Once actual load on the file is higher than preset torque, it stops working automatically.

### <Rotation mode >

- Users can choose auto-rotation mode according to operation condition.  
Level 1: Once actual torque is over the preset torque, the file move in reverse rotation. After remove the load, it stops.  
Level 2: Once actual torque is over the preset torque, after auto-reverse and load released, it turns forward-rotation again

### <Auto OFF function >

- Power is off with “beep” sound after 4 minutes without operation.



## Product specification

Charger	Motor handpiece	Angle hanpiece
TRAUS XEW10	TRAUS MCE10XX	ACL(B)-41EP
Input: AC100-240V, 50/60HZ, Max 0.1A	Voltage: DC 2.4 V $\pm 20\%$	Gear ratio: 20:1
Output: DC 4V	Battery: 2 x 1.2 V = 2.4 V	Dimensions: $\varnothing 16.7$ x 65.8 mm
Charging time: 2.5 horas		Weight: 34.8 g

## Components

Contra angle



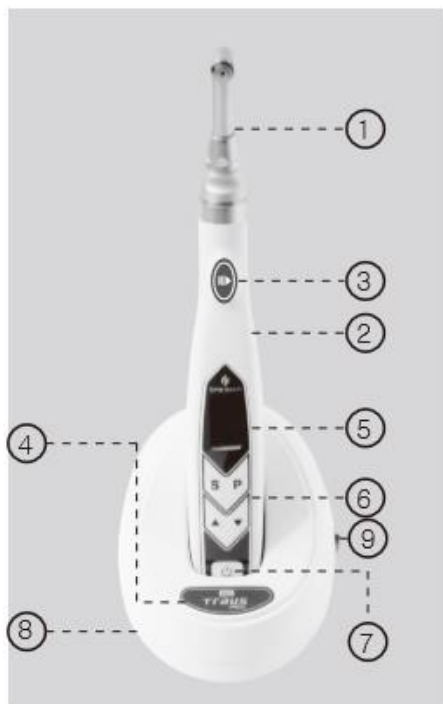
Motor handpiece



Charger

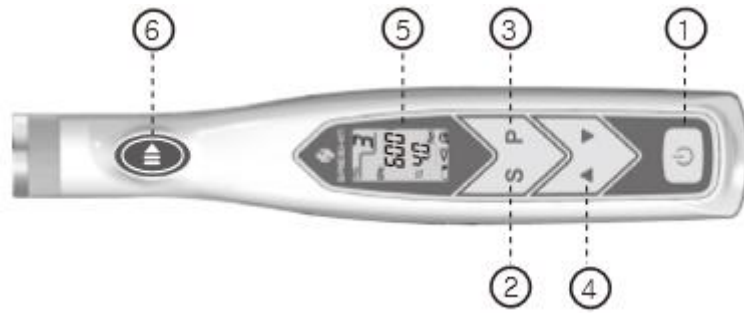


Power cord







- ① Contra angle
- ② Motor handpiece
- ③ Motor ON/OFF button
- ④ Power cord connector (back side)
- ⑤ LCD operation panel
- ⑥ Operation buttons
- ⑦ Power button
- ⑧ Charging station
- ⑨ Charger ON/OFF button

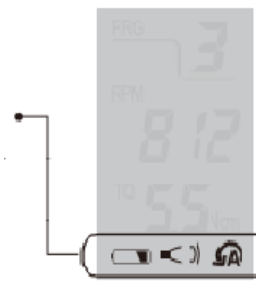
# Operation panel







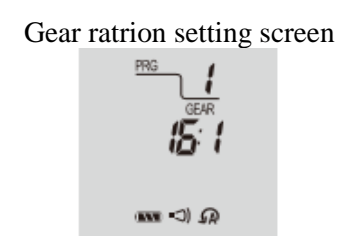
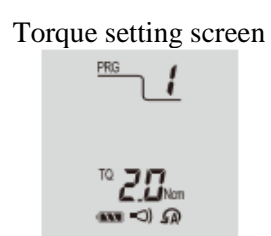
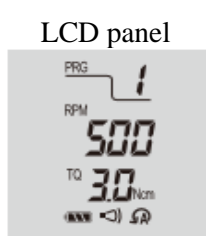
- ① **Power button**  
Push the power button until the power and LCD panel are on.  
Push the power button until turn off.
- ② **Select-S button**  
The button is to select the setting for RPM, Toque, Gear Ratio and Rotation mode.
- ③ **Program-P button**  
There are 5 programs available, from 1 to 5 and the choosing program is shown on the LCD display.  
(It can be the button for program selection and memory button as well).
- ④ **Up/Down Button**  
Press Up/Down Button to set proper RPM, Torque, and Gear Ratio.
- ⑤ **LCD panel**  
Display shows program, speed, torque, rotation, battery and alarm mode on the screen.
- ⑥ **Motor ON/OFF button**  
Push the button, then motor runs and stops.



-  **Auto reverse**  
If the load is disappeared after auto reverse rotation, it returns to the normal rotation again.
-  **Auto reverse OFF**  
Auto reverse rotation is not activated.
-  **Battery symbol**  
Shows the three steps of charging status.
-  **Alarm symbol**



-  **Program**  
Shows current program and control from step 1 to 5.
-  **Torque**  
Controls torque, shows current torque limitation (N·cm).
-  **Speed**  
Controls rotation speed.
-  **Gear ratio**  
Shows current gear ratio and possible setting gear ratio are 10:1, 16:1, 20:1 y 32:1.  
RPM and Torque are set by Gear ratio so check the setting condition of gear ratio before operation.



## Process

### Charge

1. Plug the power cord jack into the inlet placed back side of charging station.
2. Insert the power cord and plug in.
3. Turn on the power switch and check if the power lamp is on.
4. Place the motor handpiece into the charging station.  
Charging lamp is on and starts to be charged.
5. Fully charged: green light / While charging: orange light.
6. The orange light is blinking when it has short-circuited or battery need to be charging.



Charging: orange    Fully charged: green    Orange blinking



- Do not use the charging station for other purpose except the motor handpiece.
- Place the motor handpiece on the charging station for a long time. It may not be charged properly.



- The lamp light is changed orange to green after fully charged quicker than normal condition according to the battery remains.
- The orange light is blinking when it is short circuit. In this case, contact dealer or manufacturer.
- Charge the motor handpiece during rest time.
- Charging time is normally 2.5hours, but it depends on battery usage conditions, period, ambient temperature, etc. Older battery can be shorter charging and operating time.
- Battery might be slightly warm during charging, but it is not a failure.
- The battery might be defective if the orange light is blinking during charging. Charge the battery after replace new battery.
- Place the motor handpiece on the charging station for a long time. It may not be charged properly.

## Charging contra angle

Contra angle can be connected to motor handpiece at any position. Align contra angle positioning pin with the positioning slots of motor handpiece and insert the head until “click” sound. Pull it out axially to remove.



- Check if the contra angle head connected properly to the motor handpiece. Otherwise, the motor handpiece is not operating properly.



## Changing file






1. Insert the file to the chuck.
2. Push it into until “click” sound.

File removing press push button and pull the file out.



- Turn off the power to remove or connect the contra angle head.
- Pull out the file slightly after close the file to check if the file closed property.
- Clean the shank of the file to be installed before use. Allowing dirt to enter the chuck could cause loss of concentricity and deterioration of chucking force.

## Operation

- ① Press power button to turn on. 
- ② Press **[P]** button to find proper program to use.  
Press the program button till “beep” sound to memorize program. 
- ③ Press **[S]** button to change the suitable set value of auto-rotation mode, torque and gear ratio.  
Then press **[▼▲]** button to set the value and press **[P]** button to memorize. 
- ④ Press **[On/Off]** button to operate the device. 
- ⑤ After the operation is finished, put motor handpiece on charger then press power button to turn it off. 



- The power will be automatically off after 4 minutes without push the ON/OFF button.

## Programs

1. 5 programs are available to use, and flexible to set initial value and setting value (RPM, Torque, Gear ratio).
2. Press the button to find program to use.
3. Press button to control the setting of the auto rotation mode, RPM, torque, and gear ratio.
4. Press **[P]** button to memorize until “beep” sound.



- The program is not memorized if there is no “beep” sound and did not press the button more than 1 second. In this case, the initial program value is maintained.
- If the power is off after operation, the previous value is memorized

## Auto-reverse function

- If the load reaches to torque limit value, it starts reverse with “beep” sound. At this time, two auto reverse modes are available.



172

### 1. Auto reverse

If load is disappeared after reverse rotation, motor handpiece returns to forward rotation.



Load

**Forward movement**



Load on the file is over preset torque  
**Reverse movement**



Move in forward again after operation is finished

**Forward movement**



Load

**Forward movement**

## 2. Auto stop

If load is disappeared after reverse rotation, motor handpiece is stopped. Press ON/OFF button to operate the motor handpiece rotates to forward.



Load on the file is over preset torque

**Reverse movement**



Stop after operation is finished

**Stop**



- When the battery is discharged, the actual load may not reach to the preset torque limit value. In this case, auto reverse function might not work. If high torque is required, use it in a condition that the battery is not consumed a lot.
- If a load is continuously applied to the motor handpiece, it may be automatically stopped to prevent overheating. (The torque limit value indicates “OK” on the LCD panel). In this case, leave the motor handpiece until it cools down. When the display returns to normal, the motor handpiece can be used.

## Error and remedy

### Indication



- If the actual load exceeds the set torque value during operation, it is automatically reversed. At this time, if it exceeds the set torque value again, it is automatically stopped and error code (E-1) is on the screen.

### Remedy

Press the motor ON/OFF button.

## Maintenance

### 1. Contra angle cleaning

Steps	Procedures	Descriptions
1	Soil removal	Rotate the head in a tap water about 10sec with max. speed to remove the remains(blood, physiologic saline solution, etc.) and rinse.
		Remove ontaminants using a nylon brush after soaking for 20min in Enzymatic Detergent.
2	1st rinsing	Rinse using the water for 3min to remove Enzymatic Detergent of product.
3	Ultrasound wash	Wash the product for 10min in the ultrasound cleaner containing Enzymatic Detergent.
4	2nd rinsing	Perform the ultrasound rinsing repeatedly subjected 3 times for 3min using the purified water.
5	Alcohol disinfection	Wipe using dus-absorbent after the product soaked in alchol(70%) for 30sec.



## 2. Automatic cleaning

Steps	Procedures	Descriptions
1	Pre wash	Rotate the head in a tap water about 10sec with max. speed to remove the remains (blood, physiologic saline solution, etc.) and rinse.
2	Enzyme soak	Soak in Enzymatic Detergent for 3min
3	Rinse	Rinse the product 2 times using the water for 30sec
4	Detergent wash	Rinse 3 times using the water for 30sec after wash using the Enzymatic Detergent in the ultrasound cleaner at 35~45°C for 3min
5	Purified water rinse	Perform the ultrasound rinsing repeatedly subjected 3 times for 3min using the purified water at 35~45°C
6	Dry	Dry using the heating device at 90°C (±10°C) for 50min)

## 3. Motor handpiece cleaning

- Wipe the motor handpiece with a moistened cotton cloth by rubbing alcohol.

## 4. Charger cleaning

- Wipe the charger with a moistened cotton cloth by rubbing alcohol.

## 5. Autoclave

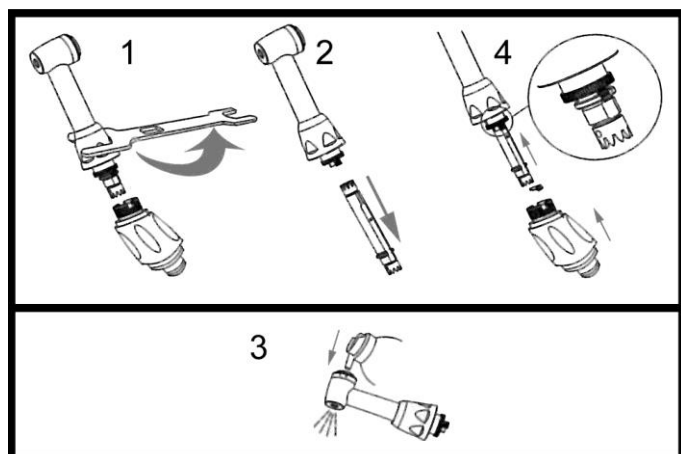
- Clean all parts very carefully.
- Remove dust on the surface and clean with the alcohol cotton or paper towel.
- Put in the sterilization bag and seal tightly.
- Put the sterile bag in the sterilizer and sterilization for 4 min with 132 °C, and let it dry for 30 min.

Sterilization	Temperature	Time	Dry
Moist heat sterilization	135 °C	4 minutes	30 minutes

## 3. Lubrication

### Cleaning and lubrication

Turn the head at high speed in water for 10 seconds approximately in order to remove blood, solutions, etc. Remove the water with a soft cloth or paper towels and lubricate using an E-type nozzle.



## Head disassembly

1. Fix a spanner to the joint cap and turn it counterclockwise to open.
2. Take out the gear.
3. Clean and lubricate the parts.
4. Reassembly – Please fix the gear to “key” of head assembly and put it in the head. Make sure the gear fits into the head assembly and check the smoothness. Assemble the head part and body. Use a wrench to lock the joint cap tightly. After lubricating, assemble the gear correctly. If assembly is wrong, the angle can be damaged.

## Contra angle lubrication

- \* Lubricate the contra angle head only.
  - \* After each use and/or before each autoclaving.
- (1) Screw the spray nozzle on to the spray.
  - (2) Insert the spray nozzle into the rear part of the contra angle head and spray lubricant 2~3 sec.

## How to introduce the lubricant

If the head is very dirty, apply the spray to the head after disassembling using the key.

In case of continuous operation, introduce oil every 30 minutes.

Introduce oil at least once a day.

Be sure to hold the head firmly during lubrication (it could fall due to high spray pressure).



- Do not lubricate the motor section of the motor handpiece.
- Do not use solvent such as benzene and/or thinner to clean.
- Stand angle handpiece on edge or lean it to take off oil. Mount it after the angle handpiece is completely drained and dried.
- Hold the handpiece firmly because the handpiece can go out due to the spray pressure.
- Supply lubricant until it comes out of the handpiece head (for approx. 2 seconds)
- Do not use a spray upside-down. In that case, only spray gas comes out without oil.
- Do not clean any plastic component such as control box and micro motor handpiece with aldehydes.

## Troubleshooting

- When user find any trouble, check the table below before contact your dealer. If none of these are applicable or cannot solve the problems with these solutions, contact your dealer.

Problem	Cause	Solution
The power of motor handpiece is not turned on.	Battery has been discharged.	Charge the battery
	Battery has not been inserted.	Insert the battery
The temperature of motor handpiece is high.	The temperature of battery is high.	It is normal that the batteries become a little bit warm right after charging. If the batteries are hot while normal operating, it can be abnormal. Contact dealer.
The charging station does not work. (The CHARGE lamp does not light.)	The plug of the charger is not inserted into the outlet, or there is no electricity in the outlet.	Check the connections.
	Internal fuse has burnt.	Contact dealer.
The motor handpiece does not rotate.	Contra angle is stuck.	Clean the head or change it.

## Warranty

(Handpiece = 1 año / Control box = 1 año)

- The warranty does not cover the damages by user's fault/misuse and normal wear-out of the products.

## Warranty exemption

### In case of device failure by user's fault

- Use the product with incorrect input voltage.
- In case of user's misuse or improper use.
- Failure due to drop the device during installing, using or moving.
- Use the not recommended consumables or accessories.
- Product failure after repairs at not recommended place.

### Other cases

- Fault by Act of God (fire, sea wind, etc.)
- Normal wear of the consumables (ball bearing, gear, chuck, spindle case assy, rotator, etc.).

Operating condition	Temperature (°C)	10~30
	Relative humidity (%)	10~80
	Atmospheric pressure (hPa)	700~1060
Shipment/Storage condition	Temperature (°C)	-20~60
	Relative humidity (%)	10~90
	Atmospheric pressure (hPa)	500~1060

## Symbol



Manufacturer



Consult Instruction for Use



EC Representative



General Mandatory Action Sign

**SN**

Serial Number



General Prohibition Sign



Autoclave



General Warning, Caution, Risk of Danger



Type BF



CE Certificate Logo



This product should not be mixed with other commercial waste for disposal



Class II equipment