



Traus ENDO

INSTRUCTION MANUAL



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408 SOM-S056S-KE [Rev.5]

English

Traus ENDO is cordless handpiece for Root canal treatment. This motor has to be used only in hospital environment, clinics or dental offices by qualified dental personnel. Read this operation Manual carefully before use for operation instructions, care and maintenance. Keep this operation Manual for future reference.

※Let us ask to be excused for switch of specification or design without advanced notification.

● **English**

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WARNING

◆ Please use the product properly after read the warning before operation.

◆ Indication of the Warnings are to protect injury and damages to users and others. Those are all for safety so, please follows the instructions.



Class II equipment

To identify equipment meeting the safety requirements specified for Class II equipment according to IEC 60536.

Note - The position of the double-square symbol shall be such that it is obvious that the symbol is part of the technical information and can in no way be confused with the manufacturer's name or other identifications.



Warning

- ◆ Only Rechargeable battery is allowed to be used. Do not use manganese and alkaline battery. If mishandled, that causes leakage or ruptures.
- ◆ Do not touch the AC power plug with wet hands. There are shock hazard.
- ◆ Do not drop any kind of liquid and water on the motor handpiece and adapter. The short circuit may cause fire, electric shock or corrosion of the product.
- ◆ Unauthorized modification and dismantling is prohibited.
- ◆ Do not drop the motor handpiece or adapter. Install the adapter on flat ground and safe place.
- ◆ If quick silver flows into eyes that can lead to blindness. Wash off the eyes with clean water promptly and consult with doctor.
- ◆ If quick silver flows on cloths and skin, it may cause skin problem. Wash off with clean water promptly.
- ◆ If the quick silver flow out from the motor handpiece or there are change of the exterior or part discolor of the motor handpiece, please stop to use and contact to seller
- ◆ If the product is not in use for long period, please put out the battery. There is possible leakage.
- ◆ Please change the same battery kinds together to use. Otherwise, it may cause leakage and battery rupture.
- ◆ Please use the designated battery and charger for the product.
- ◆ Do not disassemble or change the motor.
- ◆ The system damages occurred if the product is used near of electromagnetic interference.

Regarding to WARNINGS

Warning Classification	Degree of Injury and Damages
Warning	The Warning is to protect the loss of life and property
Caution	The Caution is to protect the serious and slight injuries and possible loss of property
Notice	The Notice is to notify mandatory for safety.

- ◆ Do not use the product near of the flammable product or nitrous oxide.
- ◆ The product has circuit which can protect of file damage, but the file can be damaged by strong torque or resistance.
- ◆ Please do not leave the child alone with the product and keep attention to child, elderly and disabled person to be close to the product or not.
- ◆ Do not touch signal input, signal output, or other connectors, and the patient simultaneously.
- ◆ External equipment intended for connection to signal input, signal output or other connectors, shall comply with relevant IEC Standard (eg, IEC60950 for IT equipment and IEC60601-1 or IEC60601-1-1 series for medical electrical equipment) If in doubt, contact qualified technician or local representative.



Notice

- ◆ The motor handpiece designed as Nickel mercury battery (rechargeable). The Ni-Cd battery is possible to use but the charging time and usage period can be shorten because the charging current is different.
- ◆ The motor handpiece spend even small electric power during power off. And generally, rechargeable battery is discharging little by little when the product is not in use after charged fully. The product is recommended to be charged before use.

- ◆ Machine is equipped with Sensor against low voltage, however, sometimes machine fails to perceive low voltage especially after re-powered for a few minutes, which is usual in normal battery.
- ◆ Please charge the battery which is rechargeable after use it as much as possible. Repeat charge and discharge after short time use, usage period of battery can be shorten (by memory effect) In this case, repetition of charge and discharge of fully used battery can make it better condition.
- ◆ If the product is not in use for long period, please put out the battery.



Caution

- ◆ Please consider the safety of patient first and take care during the product operating.
- ◆ Only qualified person in dental surgery can be allowed to use the product
- ◆ Please purchase the battery recommended by manufacturer and take care of the usage manual of battery manufacturer before use it for the product.
- ◆ Do not use the machine with the file which is bended, damaged, deformed and/or not in ISO standard, otherwise, it might cause injury by some possible fragments.
- ◆ Do not place or maintain the battery in the place in high temperature such as the place exposed to direct sunlight, inside of a car in high temperature or beside of stove and fire and so on.
- ◆ Please take care of shaving, vibration, noise and heat of the product before use and test by rotating naturally. Stop to use the product if feel abnormal condition of the product and contact to representative.
- ◆ Keep bur or file clean, otherwise dust might cause poor chucking power and it may cause vibrations during operation.

- ◆ Take care not to put needle, 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 heat sterilize the motor handpiece. Do not autoclave the motor handpiece.

- ◆ Users are responsible for operation, maintenance and inspection.
- ◆ Applications of machine is restricted by this manual and not-recommended applications by a manufacturer should be avoided.
- ◆ An arbitrary use might cause users' injury and loss of property and a manufacturer shall not be responsible for the results which are made by the operation which is not mentioned in this manual.
- ◆ Keep the speed of the usage tool as recommend by tool manufacturer. The excess speed limitation might cause the accident.
- ◆ Contact dealer when display shows wrong message, it might cause an accident.
- ◆ Only recommended product and consumable parts by manufacturer have to be used with the product, otherwise, it may cause the accident.
- ◆ Operating Condition 1) Temperature: 10°C ~ 40°C
2) Humidity: 30% ~ 75%
3) Atmospheric Pressure: 700 ~ 1,060hpa
- ◆ The temperature of the handpiece goes up to max. 43°C when atmosphere temperature is 40°C.
- ◆ Before changing the head or file, turn off the power of the motor handpiece. Changing it during power on 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. Pushing it into the charger forcibly in the incorrect direction may cause damage.

ELECTRIC SAFETY

In case of some faults in Electric Cord, Plug, and Connector, do not use machine, otherwise it might cause Fire and Electric Shock. Do not pull out the Plug with wet hand. Whenever the Plug to be pulled out, to be sure to grasp the Plug body. Do not bend Electric Cord excessively. Do not put heavy material onto Electric Cord.
-Never fail to use Outlet which is equipped with earth connection and please be instructed the way how to install the earth connection from manufacturer or technicians.
-Do not put several Plugs into one Outlet though multi-plug, which might cause Fire and Electric Shock.

-Before use, please check if the control unit has set the gear ratio to match with the gear ratio in the contra angle.

-If motor operating speed is too fast or stop during operation, contact dealer.

-Take care not to drop or damage the motor and contra angle handpiece. Do not operate the product if product is not operated properly after drop on the floor or water, contact the Head office or Dealer. That case may cause bur vibration, excessive heat and damage to the ball bearings.

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 and finished battery is recommended to be back to supplier. The product use battery which is composed of Nickel Metal Hydride, rechargeable, however, some countries stipulate it to be disposed as special waste.

INTEND USE

ACL(B)-41EP, ACL(B)-42EP and ACL(B)-45EP are for indicated for use by dentists in standard endodontic procedures using rotary files and rotary endodontic drills(Gates-Glidden)

MACHINE CLASSIFICATION

Type and Degree of protection against electric shock:

Class II/Type BF

Degree of protection against water (vertically falling drops)

stipulated in IES529 : IPX 0.

Machine should not be used at the place close to flammable Anesthetics and Oxygen.

Operation Mode: intermittent load in consecutive operation

Operation Time: Loading max. 3 minutes

Pause Time: min. 10 minutes.

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.

Machine can radiate radio frequency energy. If not installed or used in accordance with the instructions, it might cause harmful interference possibly to other devices in nearby, however, it is not assured that it will occur to a particulate installations. If machine cause harmful interference to other devices and that interference is determined by their ON/OFF, users are encouraged to try to correct the interference by one or more of the following measures:

- Machine needs to be used by a medical specialist or qualified person.
- Do not use machine at the place too close to other devices.
- Consult with manufacturer or qualified service technicians for the electronic safety information of the machine

PRODUCT FEATURES

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

<Endo mode>

- RPM: (20:1) 100~600 RPM / (16:1) 100~600RPM
- Torque: (20:1) 1~4N.cm / (16:1) 1~4N.cm
- Gear Ratio: 16:1, 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 removing 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. (During the motor operation even without use, power is not off automatically)



PRODUCT SPECIFICATION

(Charger)

- TRAUS XEW10
- Rated Voltage : AC100-240V 50 / 60Hz
- Input : 3.5 - 7.5VA
- Output : DC 4.5V
- Charging time : approx. 2.5 hours

(Motor Handpiece)

- TRAUS MCE10XX
- Rated Voltage: DC 4V
- Input 0.3VA

(Angle Handpiece)

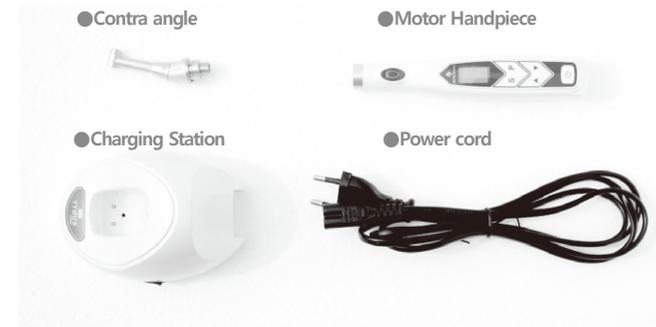
- | | | |
|-------------------------------|-------------------------------|-------------------------------|
| •ACL(B)-41EP | •ACL(B)-42EP | •ACL(B)-45EP |
| •Gear Ratio: 20:1 | •Gear Ratio: 16:1 | •Gear Ratio: 32:1 |
| •Dimensions: ϕ 16.7x63mm | •Dimensions: ϕ 16.7x63mm | •Dimensions: ϕ 16.7x63mm |
| •Weight : 348g | •Weight : 348g | •Weight : 348g |

- * Max.overall length of rotary instrument 30mm
- * Shank by ISO 1797-1, 9-12mm
- * bur release force in newtons : 50N

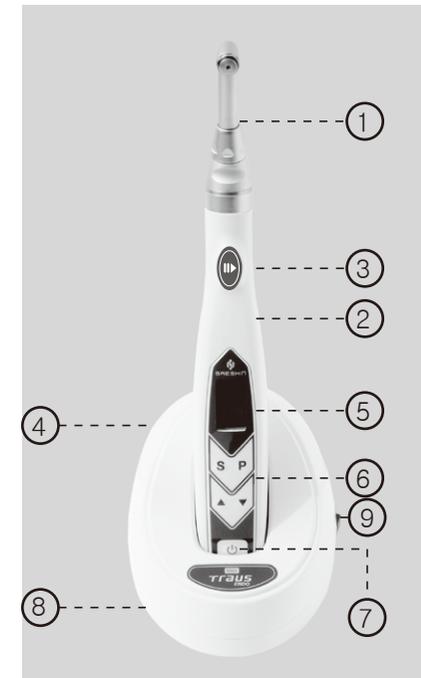
(RPM and Torque value at Gear Ratio 20:1)

- RPM: min. 100rpm ~ max. 600rpm
- Torque (Ncm): min. 1Ncm ~ max. 4Ncm
- Using time is depends on operating condition.

COMPONENTS



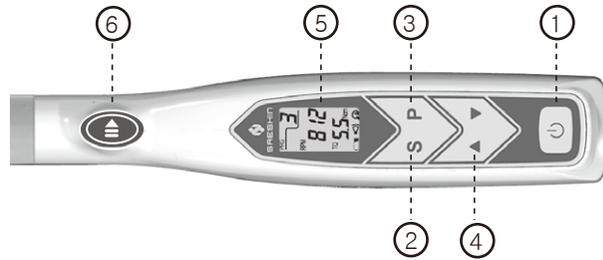
PART NAME OF CONTROL UNIT



- 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

LCD AND OPERATION PANEL

Operation panel



1 Power Button

Push the power button until the power is on and the LCD panel lights.
Push the power button until turn off.



2 Select-S Button

The button is to select the setting for RPM, Torque, 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

To set needed RPM, Torque, Gear Ratio by using the Up/Down button



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.



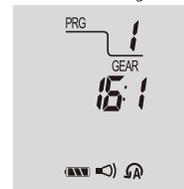
LCD panel



Torque setting screen



Gear ration setting screen



CONTROLLER LCD AND OPERATION PANEL



AUTO REVERSE:

If the load is removed after auto reverse rotation, it returns to the normal rotation again.



No display

AUTO REVERSE OFF:

Auto reverse rotation is not activated.



BATTERY SYMBOL:

shows 3 Steps for charging amount



ALARM SYMBOL (on/off):

Alarm function for each operating condition



PROGRAM:

shows current program and control from Step 1 to 5



TORQUE:

controls torque, shows current torque limitation (Measurement: N.cm)

Max Torque is different depends on Gear Ratio

Increases and decreases by 0.5Ncm

(1 -> 1.5 -> 2 -> 2.5 -> 3 -> 3.5 -> 4)



SPEED:

controls rotation speed



GEAR RATIO:

shows current Gear Ratio and possible setting Gear Ratios are 16:1 or 20:1.

RPM and Torque are set by Gear ratio so check the setting condition of Gear ratio before operating.

<RPM>



<TORQUE>



<GEAR RATIO>



OPERATIONS

1 How to 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 Charging lamp lights Green when the battery is fully charged and lights Orange while it charged. The Orange light is blinking when it has short-circuited or battery need to be changing.



! WARNING

- Never use the Charging Station for other purpose except the motor handpiece.
- Charging time is normally 2.5 hours, but it depends on battery usage conditions, battery freshness, ambient temperature, etc. Older batteries are especially prone to significantly shorter charging and operating times.
- Batteries may slightly warm up during charging, but it is not a failure.
- The battery is defective if the Orange light is blinking during charging. Charge the battery after replaces it to new one.

! NOTICE

- Charging Lamp can be changed from Orange to Green light after fully charged quicker than normal condition according to the battery remains.
- To keep the motor handpiece putting into Charging Station for a long time, it may not be charged properly.
- The Orange lamp is blinking with short circuit. In this case, contact dealer or manufacturer.
- Charge the motor handpiece during its pause time.

Charging: Orange lights



Fully charged: Green lights



Orange light blinking



2 Changing Contra Angle -----

Contra angle can be connected to Motor handpiece at any position. Align Contra angle positioning pins with the positioning slots of Motor handpiece and insert the head until "Click" Pull it out axially for removing.

! WARNING

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



3 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

! WARNING

- 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 properly.
- 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.

4 How to operate -----

- 1 Turn on the power by pressing down the Power Button.
- 2 Keep press down the Program button until program No. suitable for file to be used is displayed. (Press the program button to memorize the set condition until "Beep" sound.
- 3 Select Button is to change the set value of Auto-rotation mode, Torque and Gear Ratio which matched with the using file. To control, use Up/Down Button to set and memorize it by pressing down Program Button.
- 4 Operate the product by pressing down On/Off Button.
- 5 After operation, put the motor handpiece into the stand, turn off by pressing down Power Button.



! WARNING

- After 4 min. without On/Off Button operation, the Power turns off automatically. (Automatic Power Off function) But if the motor is operating regardless of using, the Power is not turned off automatically.

5 PROGRAM -----

- 1 There are 5 programs available and it can set the initial and setting value-RPM-Torque-Gear ratio.
- 2 Find the needed program among set program.
- 3 Control the button to adjust Auto rotation mode-RPM-Torque-Gear Ratio
- 4 Sounds "Beep" after program memorized by pressing down Program Button.

! WARNING

- The program does not memorize during handpiece operation. The program does not memorize if there is no "Beep" sound, and without pressing down Program button more than one second. The pre-set value is available.
- The previous using condition is memorized when the power is off after operation.

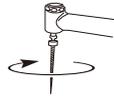
6 AUTO-REVERSE FUNCTION

- If load on the file is reach to preset torque, alarm sound changes. If load on the file is over than preset torque, three modes can be selected as below.
- The three Auto-rotation mode is available to set by pressing down Select (S) button three times. Then press down the Up/Down button to select the mode.



1 Auto Reversing

- If the load is removed after auto reverse rotation, it returns to the normal rotation again.



Load

Forward Movement



*Load on the file is over preset Torque

Reverse Movement



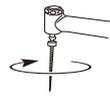
*Move in forward again after finishing the operation

Forward Movement



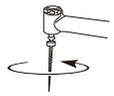
2 Auto Stop

- Motor handpiece move in Reverse movement. After removing the load, handpiece stops. To operate it forward movement, press On/Off Button again.



Operating within preset Torque

Forward Movement



*Load on the file is over preset Torque



*Stop after finish operation

Stop



WARNING

- When the batteries go down (when the remaining amount of the batteries mark indicates), the actual load may not reach to the preset torque limit value. In this case (in the case of operation by batteries), the auto reverse function will not be activated. When high torque is required, use the use this product in a condition where the batteries are not significantly consumed (when the mark of the remaining amount of the batteries indicates).
- If a load is continuously applied to the motor handpiece, it may automatically stop to prevent overheating. (The torque limit value indicates "OK" on the LCD panel). In this case, leave the motor handpiece for a while until it cools down. When the display returns to normal, the motor handpiece can be used.

CLEANING

1 Lubricating Contra Angle

- ◆Lubricate the contra angle head only
- ◆Apply after each use and/or before use 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 lubricate the head for 2-3 seconds.

2 Cleaning Motor Handpiece

- ◆When the motor handpiece becomes dirt, wipe off with a cotton cloth moistened with rubbing alcohol.

3 Cleaning Control Unit

- ◆When the control unit becomes dirty, wipe it off with a cotton cloth moistened with rubbing alcohol.



WARNING

- ◆Do not lubricate the motor section of the motor handpiece.
- ◆To clean the motor handpiece, do not use any solvent such as benzene and/or a thinner.
- ◆Before mounting the lubricated contra angle head to the motor handpiece, wipe off extra oil. Stand on its end or lean it in the proper position for gravity draining. Mount it after excess oil has been drained.
- ◆Hold the contra angle head securely to prevent it from flying off by the pressure of the spray.
- ◆Supply lubricant until it comes out of the handpiece head (for approx. 2 seconds.)
- ◆Do not use a spray can upside down. In such a case, only spray gas comes out and oil is not sprayed.
- ◆Do not clean with aldehydes for the plastic component. (Charging Station, Motor handpiece)

AUTOCLAVING

- * Sterilize the contra angle only
- *The Autoclave sterilization is recommended.

[Autoclaving]

1. When autoclave, clean all parts carefully
2. Brush the dirt off the surface of the contra angle head, and wipe off with a cotton cloth moistened with rubbing alcohol.
3. Insert contra angle head into an autoclave pouch and seal it.
4. Autoclave for 4 min. at 134°C (274°F)



Sterilization	Temperature	Time	Load characteristic	Dry time
Steam sterilization	134°C	4min	Sterilization bag	30min

! GENERAL MANDATORY

- *Clean inside of the product before sterilize to avoid dirt and blood stuck inside.
- *Do not use the product in wrong way and be careful for safety.
- *Disassemble the product after stop the product completely.
- *Disassemble and/or repair only the case which mentioned in the manual.
- *Do not drop the handpiece, it may cause the damage of the product.
- *Use the product after put the angle into the motor handpiece end completely.
- *Check if it is normal condition for handpiece operation, especially for vibration, noise, temperature etc.
- *Contact Dealer/Manufacturer if problems occur.
- *The manufacturer does not have any responsibility for the problem which not followed manual.
- *Product design and specification can be changed for better quality without advance notification.
- *User has a responsibility for use and maintains the product properly.

⦿ Error and Remedy

Indication

E-1

Remedy

- ◆ During performing the operation, In case that the actual load exceeds the torque value set, It will be automatically reversed.
At that time, when it comes over than the set torque it will be automatically stopped and Error code (E-1) will be displayed on the screen.
- ◆ Remedy : Push Motor ON/OFF Button

⦿ TROUBLE SHOOTING

*When trouble is found, check the following before contacting dealer. If none of these are applicable or the trouble is not remedied even after action has been taken, contact 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 conditions, there may be an abnormality. 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.

Problem	Cause	Solution
The motor handpiece does not rotate	Contra angle stuck	Clean the head or change it.

WARRANTY

(Handpiece=1 year/Control Box=1 year)

*The warranty does not cover the damages by user's misuse and normal wear-out of spare parts.

SERVICE CHARGE

In case of the fault or malfunction from the misuse of the user

- Using with wrong Input Voltage
- In case of user's misuse or improper use
- Dropping down during setting, moving or using.
- Using consumable parts or accessories not recommended by manufacturer
- Malfunction after repairing at the places not recommended by manufacture.

Other cases

- Fault by Act of God (fire, sea wind or water, flood etc.)
- Replacing by the normal wear of consumable parts (Ball bearings, spindle case ass'y, or motor etc.)

Operating condition	Temperature (°C)	10~40
	Relative humidity (%)	30~75
	Atmospheric Pressure (hPa)	700~1060
Transport and storage condition	Temperature (°C)	-20~60
	Relative humidity (%)	10~90
	Atmospheric Pressure (hPa)	500~1060

Symbol



Manufacturer



Instruction for user manual



Date of manufacture



General mandatory action sign



EU Representative



General prohibition sign

SN

Serial Number



General warning, caution, risk of danger



Autoclave



CE certificate logo



Type BF

Type BF



This product should not be mixed with other commercial wastes for disposal.



Class II equipment

① (Power)



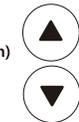
② (Select-S)



③ (Program-P)



④ (Up/Down)



⑥ (Motor On/Off)

