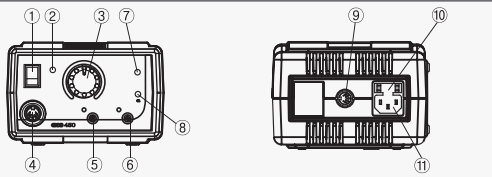


- Read all safety instructions thoroughly before operating the unit.
Keep this user's manual in a safe place for future reference.

1. Compositions

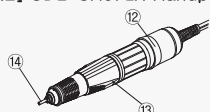
[Fig.1] Control Unit



(1) Control Unit [Fig.1]

- ① Power Switch
- ② Power Led
- ③ Speed Control Knob
- ④ Motor Connector
- ⑤ Hand/Foot Selector Switch
- ⑥ Forward/Reverse Selector Switch
- ⑦ Reset Switch
- ⑧ Overload Led
- ⑨ Foot Pedal Connector
- ⑩ Fuse Holder
- ⑪ Power Connector

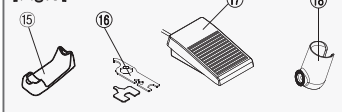
[Fig.2] SDE-SH37LN Handpiece



(2) Handpiece [Fig.2]

- ⑫ Micromotor
- ⑬ Chuck Handle
- ⑭ Bit

[Fig.3]



2. Accessories [Fig.3]

- ⑮ Handpiece Stand
- ⑯ Chuck Wrench, Chuck Joint Wrench
- ⑰ Foot Pedal (FS60N)
- ⑱ Handpiece Holder

3. Features

- (1) Forward / Reverse rotation.
- (2) Non-stage speed dialing system.
- (3) Foot Pedal for variable speed control.

4. Precaution

* Below Safety instructions must be read to avoid potential hazards that could result in personal injuries or damage to the unit.

- (1) Install the Control Unit in the room at suitable temperature (0~40°C).
Using it in an excessively dusty warm or humid location damages to the Control Unit.
- (2) When taking your Control Unit from the box, never let it fall on the floor.
Please handle with care.
- (3) Take care not to drop the handpiece. It will damage Ball Bearing or weaken durability of the handpiece.
- (4) Never plug or unplug the Power Cord with wet hands to avoid electric shock.
- (5) Never use damaged electric cable to avoid electric shock.
- (6) Do not insert too many power cords into one socket. It gives rise to fire.
- (7) Be sure not to disassemble or alter the units.
- (8) Never allow water or other liquids to spill onto and into the control unit and the micro motor, as such could cause short-circuit, abnormal heating or other troubles by rusting of metal parts.
- (9) Consider the safety of the patient or customer first, and operate the unit carefully.
- (10) Use only in the dental treatment by an authorized personnel.
- (11) Do not use or leave the unit in a high heat environment such as in direct hot sun, in a parked car under hot sun, near fire or stove.
- (12) Always check the unit for looseness, vibration, sound, operating the temperature.
Check the unit at a distant before using on the patient.
If abnormality is detected, immediately stop operation, and call the dealer.
- (13) Always put the Handpiece on its stand while in use.
- (14) Check the electric rating label (AC100~120V, 50~60Hz or AC200~240V, 50~60Hz) affixed to the rear of the control unit. Replace fuse with identical type and rating only. The Fuse Holder ⑩ contains a spare fuse.

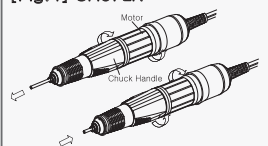
5. Operation Procedure

(1) Mounting and Removing of Bit

① For use SH37LN handpiece [Fig.4]

- ⑤ To remove a bit ⑭, turn the Chuck Handle clockwise in the direction of the arrow until it clicks to stop, and pull out the bit.
- ⑥ To mount a bit, make sure that the chuck is in open position, insert a bit all the way into the chuck, and turn the Chuck Handle clockwise in the opposite direction until it clicks to stop.

[Fig.4] SH37LN



⚠ Notice

- Always thoroughly clean the Collet Chuck and bit before reassembled.
- Always completely turn off before attempting to change the micro motor or the bit.
- Make sure to insert the bit shank all the way, unit it touches the back of the Collet Chuck. Then tighten the Collet Chuck. If the bit is used while not inserted completely, it is very dangerous because it may come out by the vibration of itself, held before running the Handpiece.
- After replace a bit, it is necessary to make sure that the Collet Chuck is secure.
- Do not turn the chuck release ring of the micro motor while the motor is in operation.
- Never use bent, asymmetrical or damaged bits. Always use standard bits.
- When the Handpiece is not in use, it is recommended a test bits be inserted into the Collet Chuck of the Handpiece.

(2) Operating of Motor

- ④ Plug the Motor Cord into the Motor Connector ④ located in the front of the Control Unit and then check it tighten.
- ⑤ Press the Hand/Foot Selector ⑤ to "Hand Mode" (Led On) in the front of the control unit, or to "Foot Mode" (Led Off) to run it in the Foot Pedal.
- ⑥ Turn on the Power switch ① to start the motor. Turn it to Off to stop the motor.
- ⑦ Press the Forward/Reverse Selector ⑥ to "FWD" (Led Off) to run the motor in the Forward direction, or to "REV" (Led On) to run it in the Reverse direction.
- ⑧ Motor speed can be varied between 0 and 45,000 rpm by the Speed Control Knob ③.

⚠ Notice

- While the Handpiece is running, DO NOT try to adjust the Chuck Handle to prevent the Control Unit from being damaged.
- Before operating the Forward/Reverse Selector to turn a rotating direction, it is surely required to make sure that the Micromotor has been stopped.
- Do not leave the Handpiece long in break state. Otherwise, it may be troubled or malfunctioned.

(3) For using Foot Pedal

- ④ Connect the Foot Pedal ⑰ plug to the jack marked as Foot Pedal (Foot Pedal Connector ⑨) in the rear of the control unit.
- ⑤ Press the Hand/Foot Selector Switch ⑤ to "FOOT" (Led off).
- ⑥ Set the Speed control knob ③ to desired maximum speed.
- ⑦ Press the Foot Pedal ⑰ to run the motor.

6. Safety Protection System

To protect the motor and the control unit from excessive temperature rise caused by overloading such as by failure of ball bearing, greater loading to the bit, etc., a temperature sensor activates, when the temperature rises above the preset value, to be shut off the power supply.

When this safety protection system functions, press Reset Switch ⑦. Operate again.

7. Trouble shooting

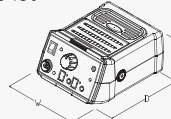
Troubles	Cause	Remedy
Motor fails to run.	④ Loose connection motor plug with jack in control unit.	Correctly plug the Motor cord.
	⑤ Defect in motor cord.	Replace motor cord.
	⑥ Trouble in motor.	Check motor and repair if the motor is troubled.
Motor stops suddenly in use. (Safety protection system functioned.)	Overloaded, or Chuck is opened during operation.	See 6. Safety Protection System. Check the chuck and close the chuck if opened.
Motor fails to run when Foot Pedal is used.	③ H/F Selector is at "Hand".	Set it at "Foot"
	④ Foot Pedal fails to function.	Check and replace Foot Pedal.
	⑤ Defect in Foot Pedal cord.	Check and replace Foot Pedal.
	⑥ Loose connection Foot Pedal plug with jack in control unit.	Check Foot Pedal plug and connection.
	⑦ Switch OFF.	Check Power Switch "ON".

If any malfunction case was found, please contact with the dealer the unit was purchased.

■ Specifications

ECO450	Input Voltage		Output	Weight	Dimension(mm)		
					W	D	H
	AC 100~120V 50/60 Hz				141	185	97
	AC 220~240V 50/60 Hz						
SH37LN Handpiece	Input Voltage	Torque	Max. RPM	Weight	Dimension(mm)		
					Φ	L	
	DC 30V, 0.5A	3.0N·cm	40,000	210 g	28	152	

[Fig.5] ECO450



[Fig.6] SH37LN

