



Please read this Operation Manual carefully before use, and file for future reference.

MADE IN JAPAN OML-C0363E 004

This operation manual for :

NAC - EC / ER4 / ER10 / ER16 / ER64 / ECM / ER4M / ER10M / ER16M / ER64M
 BB - EC / ER4 / ER10 / ER16 / ER64 / ECM / ER4M / ER10M / ER16M / ER64M
 NM - EC / ER4 / ER10 / ER16 / ER64 / ECM / ER4M / ER10M / ER16M / ER64M
 NBBW - EC / ER4 / ER10 / ER16 / ER64 / ECM / ER4M / ER10M / ER16M / ER64M

Indications for Use

The handpiece is designed only for clinical dental use by qualified personnel.

⚠ Caution

- When operating the handpiece always consider the safety of the patient.
- Check for vibration, noise and overheating outside the patient's oral cavity before use. If any abnormalities are found, stop using the Product immediately and contact your authorized dealer.
- Do not disassemble or alter the handpiece except as recommended by NSK in this Operation Manual.
- Do not allow any impact on to the Product. Do not drop the handpiece.
- Do not exceed the allowable max speed recommended on the Specification.
- Be sure to connect or disconnect the handpiece only after the motor completely stops rotation.
- Prior to clinical use, inspect the handpiece. Check for vibration, noise and overheating. If any abnormalities are found, stop using the handpiece immediately and contact your Authorized NSK Dealer. (Refer to "5. Checking the Handpiece Before Each Use")
- Operators and all others in the area must wear eye protection and a mask when operating this handpiece.
- Perform periodical maintenance checks. (Refer to "9. Periodical Maintenance Checks")
- If the handpiece has not been used for a long period, check for noise, vibration, and overheating before use.

1. Specifications

Model	NAC-Y	BB-Y	NM-Y	NBBW-Y
Allowable Max. Speed (motor)	30,000 min ⁻¹	40,000 min ⁻¹	30,000 min ⁻¹	40,000 min ⁻¹
Bur Type	ISO 1797-1 (EN ISO 1797-1) Type1 Ø2.35mm CA Bur			
Chuck Length	13.2mm	13.7mm	10.6mm	12.7mm
Max. Bur Length	22.5mm	22.5mm	22.5mm	22.5mm
Max. Working Part Diameter	φ 4.0mm	φ 4.0mm	φ 4.0mm	φ 4.0mm

Sheath	EC/ECM	ER4/ER4M	ER10/ER10M	ER16/ER16M	ER64/ER64M
Gear Ratio	1 : 1	4 : 1	10 : 1	16 : 1	64 : 1

2. Connecting and Disconnecting the Handpiece from the Motor

(1) Connecting

Insert the handpiece direct into the motor.

(2) Disconnecting

Hold the motor and the handpiece, then pull apart.

⚠ Caution

- Do not connect or disconnect the handpiece until the motor has completely stopped.
- Connect ONLY to E type motors (ISO 3964 (EN ISO 3964)). Do not exceed the Max. Rotation Speed (Motor) shown in "1. Specifications".

3. Inserting and Removing the Bur

⚠ Caution

- Do not insert or remove the bur until the rotation has completely stopped.

(1) Inserting

- 1) Swing the Latch Plate to open the chuck.
- 2) Insert the bur into the chuck until the bur "notch" mechanism engages.
- 3) Swing the Latch Plate back to closed position.

(2) Removing

Swing the Latch Plate to open position and pull the bur out.

⚠ Caution for bur

- Do not use burs with problems listed below as the bur may break, seize up or disengage from the chuck.
 - Bent, deformed, worn, rusted, broken, deficient bur.
 - Bur which is cracked on the edge or axis.
 - Non-ISO(EN ISO) standard, or tampered bur.
- Make sure that the bur is safely inserted before use. Incorrect installation may cause the bur to come out during rotation and is very dangerous.
- Do not exceed the bur speed recommended by the bur manufacturer.

4. Connecting the Irrigation Tube

■ NBBW

Cut the Irrigation Tube (Option) to the desired length. Connect the Irrigation Tube to the irrigation nozzle. (Fig.1)

* Tube (RSM) : Order Code Z166101

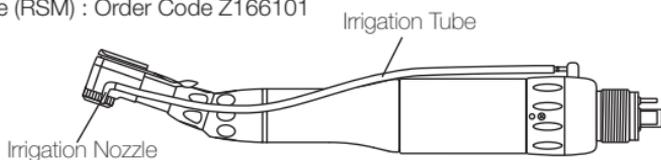


Fig.1

■ NAC / BB / NM

Attach the Spray Nozzle (Option) to the handpiece head. Cut the Irrigation Tube to the desired length then connect to the Spray Tube Nozzle on the motor. (Fig. 2)

* Spray Nozzle NAC, BB : Order Code C032701

NM : Order Code C039701

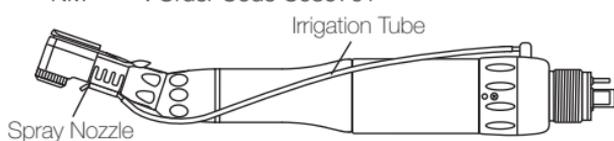


Fig.2

5. Checking the Handpiece Before Each Use

Follow the check procedure below before use. If any abnormalities are found, stop using the handpiece immediately and contact your Authorized NSK Dealer.

- 1) Check the union nut (Fig.5) on the head is firmly tightened. If loosened, tighten the union nut.
- 2) Check the end cap (Fig.6) is firmly tightened. If loosened, take the following actions.
 - NAC / BB / NBBW: Tighten the end cap with the provided cap wrench.
 - NM: Contact your dealer. (The cap wrench is not provided due to not being able to change the cartridge.)
- 3) Insert the bur.
- 4) Rotate the handpiece for about one minute at the Max. rotation speed stated in "1. Specifications". During rotation, check for abnormalities such as abnormal rotation, vibration, noise.
- 5) After the handpiece rotation has completely stopped, touch the handpiece head to confirm the head is NOT heating abnormally (Fig.3).

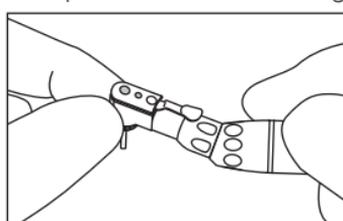


Fig.3

⚠ Caution

- Do not use the handpiece when the end cap is loose. Using the handpiece under such condition will cause looseness of the internal parts in the handpiece head, which may cause the end cap to come off and patient's accidental ingestion.
- To avoid injury, keep your hands away from the bur during rotation.

6. Lubrication

PANA SPRAY Plus / PANA SPRAY

Supply "PANA SPRAY Plus /PANA SPRAY" after each use and/or before autoclaving.

- 1) Push E-type Spray Nozzle attachment over the lubricant spray nozzle until it firmly seats.
- 2) Remove the bur.
- 3) Insert the E-Type Spray Nozzle in the rear of the handpiece and spray for approximately 2 – 3 seconds until the oil comes out of the handpiece head.

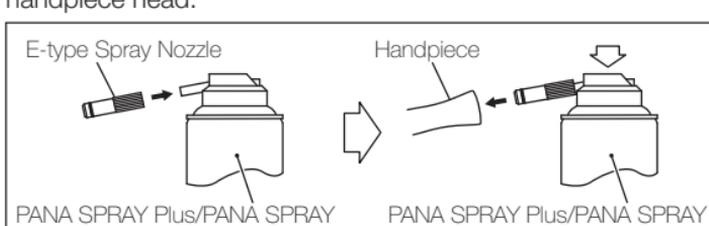


Fig.4

⚠ Caution

- Be sure to hold the handpiece firmly to prevent the handpiece from slipping out of hand by the spray pressure when lubricating.
- Supply lubricant until it comes out of the handpiece head (for approx. 2 – 3 seconds).
- Hold the Lubricate spray can upright.

7. Sterilization

Steam autoclave is recommended.

Sterilization is required first time you use and after each patient.

■ Autoclave Procedure :

- 1) Scrub dirt and debris from the handpiece, and wipe clean with alcohol-immersed cotton swab or cloth. Do not use a wire brush.
- 2) Lubricate the handpiece. Refer to 6. Lubrication.
- 3) Insert the handpiece into the sterilization pouch that conforms to ISO 11607-1, and seal the pouch.
- 4) Perform steam sterilization with the following conditions.

Type	Gravity Displacement	Pre-Vacuum (Dynamic Air Removal)	
Temperature	132°C (270°F)	132°C (270°F)	134°C (273°F)
Exposure Time	15min	4min	3-18min
Drying Time	30min	30min	30min
Remarks	-	Only for USA / Canada	-

- 5) Keep the handpiece in the sterilization pouch to keep it clean until you use it.

* NSK recommends sterilizers according to EN 13060 or ISO 17665-1. Follow local rules, regulations, and guidelines regarding the reprocessing of devices.

⚠ Caution

- Do not wipe nor immerse the handpiece in acidic water or acidic solutions.
- Keep the product in suitable atmospheric pressure, temperature, humidity, ventilation, and sunlight. The air should be free from dust, salt and sulphur.
- Do not touch the product immediately after autoclaving as it will be very hot and must remain in a sterile condition.

8. Cartridge Replacement (NAC, BB, NBBW)

- 1) Loosen the Union Nut and remove the head from the sheath. Pull out the Middle Gear from the head. (Fig. 5)

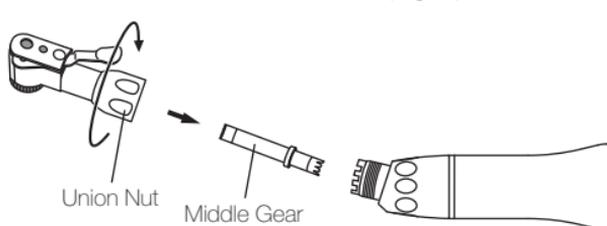


Fig.5

- 2) Place Cap Wrench on the End Cap and turn counter-clockwise. Unscrew and remove the cap. (Fig. 6)

- 3) Swing to open the latch plate. Insert a bur blank or round rod into a hole from the head end, and push out the cartridge. At this time, if the inside of the head is dirty, clean the inside by applying PANA SPRAY Plus/PANA SPRAY.

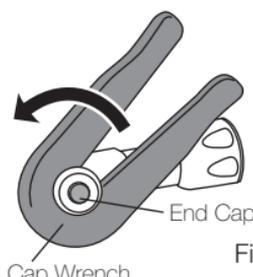


Fig.6

- 4) Insert the new cartridge, with its pin aligned in the slot of the head. (Fig. 7)

- 5) Mount each part in a reverse procedure to the removal procedure, and firmly tighten the end cap with the cap wrench.

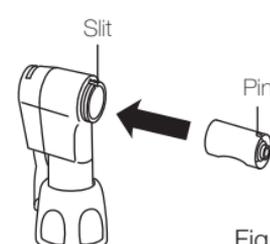


Fig.7

- * Cartridge (NAC-03) NAC-Y : Order Code C030011
- (BB-03) BB-Y : Order Code C037015
- (NBB-03) NBBW-Y : Order Code C210015
- * Cap Wrench (Black) : Order Code C071751
- * Middle Gear (NAC-02) NAC, BB, NBBW : Order Code C032012

9. Periodical Maintenance Checks

Every 3 months perform periodical maintenance checks, referring to the check sheet below. If any abnormalities are found, contact your Authorized NSK Dealer.

Points to check	Details
Union nut is loose	Check the union nut on the head is firmly tightened.
End cap is loose	Check the end cap is firmly tightened.
Rotation	Rotate the handpiece and check for abnormalities such as abnormal rotation, vibration, noise, and overheating.

CE The EU directive 93/42/EEC was applied in the design and production of this medical device.

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Specifications are subject to change without notice.

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