

**NSK**

Contra Angle Handpiece

**Ti-Max nano**

nano15LS

nano25LS

nano95LS

OPERATION  
MANUAL

CE 0197 MADE IN JAPAN

OM-C0520E

## 1. User and Intended Use

User : Qualified Professionals

Intended Use : Dental Treatment



### CAUTION


This handpiece can **ONLY** be connected to E type motors in accordance with ISO 3964 with a motor insert length of 23mm or less.

≤23mm



## 2. Precautions for handling and operation

- Please read these precautions carefully and use only as intended or instructed.
- Safety instructions are intended to avoid potential hazards that could result in personal injury or damage to the device. Safety instructions are classified as follows in accordance with the seriousness of the risk.

Class	Degree of Risk
 <b>CAUTION</b>	Hazard that could result in light or moderate injury or damage to the device if the safety instructions are not correctly followed.
<b>NOTICE</b>	General product specification information highlighted to avoid product malfunction and performance reduction.

### **CAUTION**

- Read this Operation Manual before use to fully understand the product functions and file for future reference.
- When operating the product always consider the safety of the patient.
- This product does not consider patient's age (except infants), gender, weight or nationality.

- This product does not consider operator's age (mature person), height, weight, gender, or nationality.
- Users are responsible for the operational control, maintenance and continual inspection of this product.
- Do not attempt to disassemble the product nor tamper with the mechanism except as recommend by NSK in this Operation Manual.
- Do not allow any impact on to the product. Do not drop the product.
- Operators and all others in the area must wear eye protection and a mask when operating this handpiece.
- Should the product function abnormally, cease operation immediately and contact your Authorized NSK Dealer.
- Depressing the Push Button while the handpiece is in operation may cause overheating, serious technical damage and possible premature handpiece failure. During operation avoid contact with any oral tissue that may cause the Push Button to be depressed while the handpiece is in operation.
- Supply coolant water and coolant air while operating the handpiece. The handpiece may overheat or fail if the coolant water and coolant air are not supplied properly.
- Do not use high acid water or sterilizing solutions to wipe, immerse or clean the product.
- The products are delivered in a non-sterile condition and must be autoclaved prior to use.
- Perform regular function and maintenance checks.
- If the product is not used for a long period check it is functioning correctly before using on a patient.
- To avoid clinical downtime it is recommended that a spare be kept on hand in case of a breakdown during surgery.

### 3. Connection & Disconnection of the Handpiece and Motor

#### 3-1 Connection

- 1) Connect the handpiece direct to the motor and twist the handpiece until it locks into position with a clicking sound.
- 2) Make sure the handpiece is firmly connected to the motor.

#### 3-2 Disconnection

Hold the motor and the handpiece separately and disconnect with care.

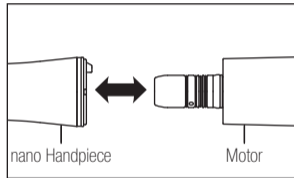


Fig. 1



## CAUTION

- Disconnect the handpiece only after the motor has completely stopped rotating.
- This handpiece can ONLY be connected to E type motors in accordance with ISO 3964 with a motor insert length of 23mm or less.

$\leq 23\text{mm}$



## 4. Insertion & Removal of the Bur

### 4-1 To Insert the Bur

nano15LS/nano25LS

- 1) Insert the bur until it is correctly seated in place.
- 2) Depress the Push Button and insert the bur into the chuck until the bur "notch" mechanism engages. Release the button.
- 3) Ensure that the bur is secure by gently pulling and pushing the bur WITHOUT depressing the Push Button.

nano95LS

- 1) Insert the bur until it is correctly seated in place. (Fig.3)
- 2) Depress the Push Button and insert the bur into the chuck until it is secure then release the button.
- 3) Ensure that the bur is secure by gently pulling and pushing the bur WITHOUT depressing the Push Button.

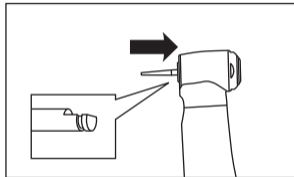


Fig. 2

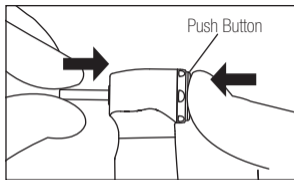


Fig. 3

## NOTICE

Grip the handpiece while placing your thumb tip on the Push button which makes it easier to depress the button.

### 4-2 To Remove the Bur

Depress the Push Button firmly and remove the bur.



## CAUTION

- Always insert the bur all the way into the chuck.
- Remove the bur only after the handpiece has completely stopped rotating.
- Always keep the bur shank clean. Entry of debris into the chuck, via the bur shank, could cause bur rotation slip and also prevent the bur from being securely located in the chuck.
- Do not exceed the bur speed recommended by the bur manufacturer.
- Do not exceed maximum bur length recommended by the handpiece manufacturer.
- Do not apply excess pressure to the bur as it may break or bend or become difficult to remove.

- DO NOT use burs with problems listed below as the bur may break or disengage from the chuck.
  - Bent, deformed, anisomeric (worn), rusted, broken, deficient bur.
  - Bur which is cracked on the edge or axis.
  - Non-ISO standard, or tampered bur
- Do not use burs longer than 25mm for the handpiece. If the longer burs are used for the handpiece, the bur may warp or disengage from the handpiece under high speed rotation. When using a bur from 20mm to 25mm in length, the applicable diameter of the bur head is as follows; 2mm or less for diamond burs, 1mm or less for carbide burs.
- Do not rotate the handpiece without a bur in the chuck. The handpiece may overheat and may cause a burn injury.

## 5. Check before treatment

Check that the Head Cap is firmly tightened. Also check for handpiece vibration, noise and overheating. If any abnormalities are found do not use the handpiece and contact your Authorized NSK Dealer.



## 6. Maintenance

After each patient and before storage maintain the product as follows. Lack of maintenance could cause premature failure or overheating of the product.

### 6-1 Cleaning (Handpiece)

- 1) Remove dirt and debris from the product. Do not use a wire brush.
- 2) Wipe clean with alcohol-immersed cotton swab or cloth.

 This icon denotes that the product can be washed via Thermo Disinfector.

Refer to the Thermo-Disinfector manual.



### **CAUTION**

- After washing with Thermo-Disinfector and prior to lubrication, dry the product until all internal moisture is thoroughly removed. Thermo-Disinfector moisture remaining inside the product could reduce the effect of lubrication and could cause corrosion inside of the product.
- To clean the product never use any solvent such as benzine or thinner.

## 6-2 Cleaning (Optic)

Wipe clean the Glass Rod tip with an alcohol-immersed cotton swab. Remove all debris and oil. (Fig.4)

### CAUTION

Do not use a sharp tool to clean the Glass Rod. It could damage the glass and reduce the light transmission.

## 6-3 Lubrication

### ■ NSK PANA SPRAY Plus

Apply NSK PANA SPRAY Plus every time after each use and/or before autoclaving.

- 1) Remove the bur from the handpiece.
- 2) Insert the Spray Nozzle into the Spray Port nozzle on the can.
- 3) Insert the Spray Nozzle in rear of the handpiece. Hold the handpiece and spray for approximately 2-3 seconds. Apply lubricant until it expels from the handpiece head for at least 2 seconds. (Fig.5)

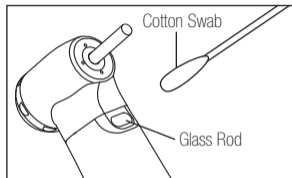


Fig. 4

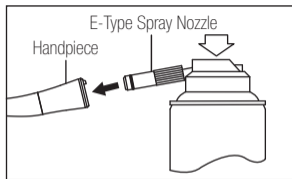


Fig. 5

## CAUTION

- When applying spray be sure to hold the handpiece firmly to prevent the handpiece from slipping out of the hand due to the spray pressure.
- Hold the spray can upright.

### ■ Chuck cleaning (only for nano95LS)

Clean Push Button chuck once a week.

- 1) Mount the arrow-head spray nozzle tip into the spray can port.
- 2) Lubricate the chuck directly through the bur insertion hole. (Fig.6)
- 3) Lubricate handpiece by using NSK PANA SPRAY Plus (Fig.5) or Care3 Plus.

## CAUTION

If the chuck is not regularly cleaned the chuck grip may be weakened and the bur may be accidentally released while in operation.

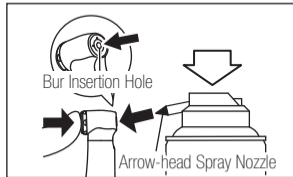


Fig. 6

■ NSK Care3 Plus

When using NSK Care3 Plus automatic handpiece cleaning and lubrication system, refer to the Care3 System instructions.

#### 6-4 Sterilization

Sterilize the product by autoclave sterilization. Remove the bur after each patient and sterilize as noted below.

1) Insert into an autoclave pouch. Seal the pouch.

2) Autoclavable under the conditions below.

Autoclave for more than 20 min. at 121°C, or 15 min. at 132°C, or 3 min. at 134°C.

3) The handpiece should remain in the autoclave pouch until required for use.

## CAUTION

- Do not autoclave the product with other instruments even when it is in a pouch. This is to prevent possible discoloration and damage to the product from chemical residue on other instruments.
- Keep the product in suitable atmospheric pressure, temperature, humidity, ventilation, and sunlight. The air should be free from dust, salt and sulphur.
- Immediately after use, the product should be cleaned, lubricated and sterilized. If blood remains on the external or internal surfaces it can become clotted and cause rust.
- Do not heat or cool the product too quickly. Rapid change in temperature could cause damage to the product.
- If the sterilizer chamber temperature may exceed 135°C during the dry cycle then delete the dry cycle.
- Autoclave sterilization is recommended for the product. The validity of other sterilization methods is not confirmed.
- Do not touch the product immediately after autoclaving as it will be very hot and must remain in a sterile condition.

## NOTICE

NSK recommends Class B sterilizers as stated in EN13060.

## 7. Periodical Maintenance Checks

Perform periodical maintenance checks every three months, referring to the check sheet below. If any abnormalities are found, contact your Authorized NSK Dealer.

Points to check	Details
Head cap is loose	Check that the Head Cap is firmly tightened.
Rotation	Rotate the handpiece and check for abnormalities such as abnormal rotation, vibration, noise, and overheating.
Coolant Water	Operate the handpiece and check that the coolant water is flowing through the spray port.

## 8. Symbol



This product is Autoclavable up to Max.135°C.



This product can be washed via Thermo Disinfector.



Conforms to CE European Directive of "Medical device directive 93/42/EEC."



Manufacturer.



Authorized representative in the European community.

## 9. Warranty

NSK products are warranted against manufacturing errors and defects in materials. NSK reserves the right to analyze and determine the cause of any problem. Warranty is voided should the product be not used correctly or for the intended purpose or has been tampered with by unqualified personnel or has had non NSK parts installed. Replacement parts are available for seven years beyond discontinuation of the model.

## 10. Spare Parts List

Model	Order Code
E-Type Spray Nozzle*	Z019090

\*Attached item

## 11. Disposing product

In order to avoid the health risks of operators handling the disposal of medical equipment, as well as the risks of environmental contamination caused thereof, a surgeon or a dentist is required to confirm the equipment is sterile. Ask specialist firms who are licensed to dispose of specially controlled industrial wastes, to dispose the product for you.

## 12. Specifications

Model	nano15LS	nano25LS	nano95LS
Max. Rotation Speed (Motor)	40,000 min <sup>-1</sup>	40,000 min <sup>-1</sup>	40,000 min <sup>-1</sup>
Max. Rotation Speed (Handpiece)	10,000 min <sup>-1</sup>	40,000 min <sup>-1</sup>	200,000 min <sup>-1</sup>
Gear Ratio	4:1 Reduction	1:1 Direct Drive	1:5 Increasing
Bur Type	ISO 1797-1 Type1 ø2.35mm CA Bur		ISO 1797-1 Type3 ø1.59-1.60mm Standard FG Bur
Chucking Length	12.7mm		10.9mm
Max. Bur Length	22.5mm		25mm
Max. Working Part Diameter	ø4.0mm		ø2.0mm
Optic	Glass Rod		
Water Spray Type	Single		Quattro
Water Consumption	Min. 46mL/min (0.1MPa)		Min. 37mL/min (0.1MPa)
Chip Air Consumption	Min. 1.6L/min (0.15MPa)		Min. 2L/min (0.15MPa)
Use Environment	Temperature: 10 - 35°C (No Condensation), Humidity: 30 - 75%, Atmospheric Pressure: 700 - 1,060hPa		
Transportation and Store Environment	Temperature: -10 - 50°C, Humidity: 10 - 85%, Atmospheric Pressure: 500 - 1,060hPa		



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