

## SGS / SGA

SGS-ES / SGS-EM / SGS-EL  
 SGS-E2S / SGS-E2M / SGS-E2L  
 SGA-ES / SGA-EM / SGA-EL  
 SGA-E2S / SGA-E2M / SGA-E2L



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

MADE IN JAPAN  
 QM-SH0015E 005



### Indications for Use

The device is intended for surgical use. Typical usage includes dental implant use : drilling and tapping the maxilla and mandible.

### WARNING

- Immediately after a surgery, the handpiece should be cleaned, lubricated and sterilized. Failure to properly maintain the handpiece can lead to contaminants remaining inside the handpiece. Unremoved blood may result in product failure due to the internal blood coagulation. Improper maintenance may also lead to overheating, causing burn injuries, product failure, or difficulty in attaching and detaching the bur.
- Do not rotate the motor when the Bur Lock Ring is at the OPEN position, or when a bur is not mounted in the chuck. Either situation may cause burn injuries due to sudden heat generation. In addition, the motor insert could be damaged which may lead to difficulty in connecting and disconnecting the handpiece.
- Ball bearings are wear items and may require replacement. Be sure to inspect the handpiece before use (Refer to "5. Checking the Handpiece Before Each Use"). If abnormal vibration or noise are found, the bearings or other internal parts may be worn out or damaged. Damaged parts may lead to handpiece overheating causing burn injuries. If overheating is suspected, stop using the handpiece immediately and contact your Authorized NSK Dealer.

### CAUTION

- When operating the handpiece always consider the safety of the patient.
- This handpiece is designed for surgical use by qualified personnel.
- 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.
- Do not disassemble or alter the handpiece.
- Should the handpiece function abnormally during use, stop using the handpiece immediately and contact your Authorized NSK Dealer.
- Do not allow any impact to the handpiece. Do not drop the handpiece.
- This handpiece is delivered in a non-sterile condition and must be autoclaved prior to use (Refer to "7. Post-use Maintenance").
- Do not use bent, damaged or deformed burs as such burs may be accidentally released or break during rotation.
- Do not use burs other than specified in "1. Specifications" as such burs may be accidentally released or break during rotation.
- Always keep the bur shank clean. Dirt or debris in the chuck could cause poor bur concentricity or low chuck retention force.
- Always insert the bur all the way into the chuck. If insertion is insufficient, premature failure of the bearings or accidental release of the bur may occur.
- Always confirm before use that the bur is attached securely. Improper attachment may lead to sudden release of the bur during rotation.
- Do not exceed the bur speed recommended by the bur manufacturer.
- Never turn the Bur Lock Ring while the handpiece is rotating.
- For patients' safety, be sure to use a new bur for each surgical operation.
- Operators and all others in the area must wear eye protection and a mask when operating this handpiece.
- Perform periodical maintenance checks (Refer to "8. Periodical Maintenance Checks").
- If the handpiece has not been used for a long period, rotate the handpiece and check for noise, vibration and overheating before use.
- U.S. Federal law restricts this device to sale by or on the order of a licensed physician.

## 1. Specifications

Model	SGS-ES	SGS-EM	SGS-EL
Handpiece Type	Straight / Short	Straight / Medium	Straight / Long
Gear Ratio	1:1 Direct Drive		
Allowable Max. Speed	40,000 min <sup>-1</sup> (rpm)		
Bur Size	Short Surgical Burs ø2.35 x L70 mm	Medium Surgical Burs ø2.35 x L95 mm	Long Surgical Burs ø2.35 x L125 mm
Chuck Length	55.5mm	80.5mm	110.5mm
Max. Working Part Diameter	ø7.0 mm		

Model	SGS-E2S	SGS-E2M	SGS-E2L
Handpiece Type	Straight / Short	Straight / Medium	Straight / Long
Gear Ratio	1:2 Increasing		
Allowable Max. Speed	80,000 min <sup>-1</sup> (rpm)		
Bur Size	Short Surgical Burs ø2.35 x L70 mm	Medium Surgical Burs ø2.35 x L95 mm	Long Surgical Burs ø2.35 x L125 mm
Chuck Length	55.5mm	80.5mm	110.5mm
Max. Working Part Diameter	ø3.0 mm		

Model	SGA-ES	SGA-EM	SGA-EL
Handpiece Type	Angle / Short	Angle / Medium	Angle / Long
Gear Ratio	1:1 Direct Drive		
Allowable Max. Speed	40,000 min <sup>-1</sup> (rpm)		
Bur Size	Short Surgical Burs ø2.35 x L70 mm	Medium Surgical Burs ø2.35 x L95 mm	Long Surgical Burs ø2.35 x L125 mm
Chuck Length	55.5mm	80.5mm	110.5mm
Max. Working Part Diameter	ø7.0 mm		

Model	SGA-E2S	SGA-E2M	SGA-E2L
Handpiece Type	Angle / Short	Angle / Medium	Angle / Long
Gear Ratio	1:2 Increasing		
Allowable Max. Speed	80,000 min <sup>-1</sup> (rpm)		
Bur Size	Short Surgical Burs ø2.35 x L70 mm	Medium Surgical Burs ø2.35 x L95 mm	Long Surgical Burs ø2.35 x L125 mm
Chuck Length	55.5mm	80.5mm	110.5mm
Max. Working Part Diameter	ø3.0 mm		

Use Environment	Temperature: 10 - 35°C (No Condensation), Humidity: 30 - 75%
Transportation and Store Environment	Temperature: -10 - 50°C, Humidity: 10 - 85%, Atmospheric Pressure: 500 - 1,060hPa

NOTE: Rotation speed in use varies according to the Max. Working Part Diameter. See operation manual for the bur.

## 2. Connecting and Disconnecting the Handpiece and the Motor

### (1) Connecting

- 1) Insert the handpiece until it reaches the end of the Motor Insert.
- 2) Screw the handpiece until it clicks.

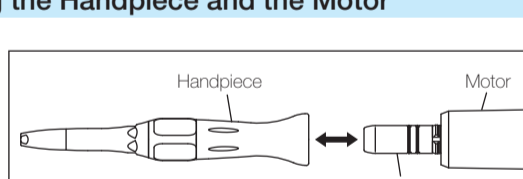


Fig.1

### (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) with the Max. Speed of 40,000 min<sup>-1</sup> or less.

## 3. Mounting and Removing the Bur

### (1) Mounting the Bur

- 1) Turn the Bur Lock Ring in the direction of the "⌚" mark until it clicks. (Fig. 2)
- 2) Insert the bur fully into the chuck then turn the Bur Lock Ring in the direction of the "🔒" mark until the ● mark and the "🔒" mark align with a click.
- 3) Confirm that the bur is not removed by gently pulling and pushing the bur.

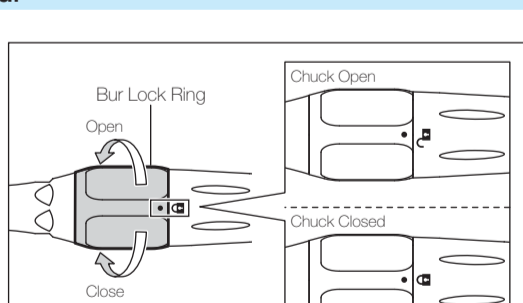


Fig. 2

### (2) Removing the Bur

Turn the Bur Lock Ring in the direction of the "⌚" mark until it clicks then remove the bur.

### WARNING

- Do not rotate the motor when the Bur Lock Ring is at the OPEN position (the ● mark and the "🔒" mark are misaligned), or when a bur is not mounted in the chuck. Either situation may cause burn injuries due to sudden heat generation. In addition, the motor insert could be damaged which may lead to difficulty in connecting and disconnecting the handpiece.

- After mounting the bur in the chuck, be sure to confirm that the ● mark and the "🔒" mark align. If these marks are not completely aligned, burn injuries may occur due to handpiece overheating during rotation.

### CAUTION

Do not mount or remove the bur until the motor has completely stopped.

## 4. The Bur

The SGS/SGA series handpieces are designed for use with surgical burs (ø2.35mm, approx. 70mm in shank length).

### ■ To Mount the Stopper (ONLY for SGS-ES, SGA-ES)

When using a bur designed for dental straight handpieces in implant surgery, etc., attach the Stopper (Option) to the handpiece.

- 1) Remove the bur from the handpiece. (Refer to “3. Mounting and Removing the Bur”)
- 2) Turn the Bur Lock Ring to the OPEN position. (Fig. 2)
- 3) Insert the threaded portion of the Stopper into the chuck then screw it in with the provided screwdriver.

\* Stopper: Order Code Y900160

### ⚠ CAUTION

The handpieces stated below are not suitable for the stopper. Use only with a surgical bur. SGS-EM, SGS-EL, SGS-E2S, SGS-E2M, SGS-E2L, SGA-EM, SGA-EL, SGA-E2S, SGA-E2M, SGA-E2L

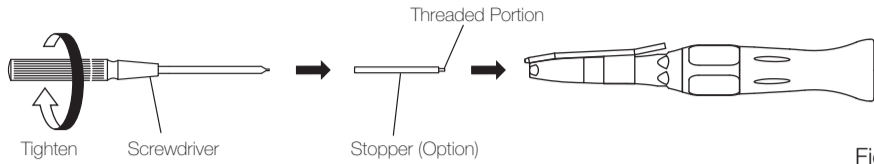


Fig. 3

## 5. Checking the Handpiece Before Each Use

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

- 1) Mount the Bur. (Refer to “3. Mounting and Removing the Bur”)
- 2) Adjust the handpiece rotation speed in accordance with the allowable maximum speed for the attached bur.
- 3) Rotate the handpiece and check for abnormal rotation, vibration, noise and overheating. If any of these conditions are found, stop using the handpiece and contact your Authorized NSK Dealer.
- 4) If there are no immediate apparent abnormalities, continue to rotate the handpiece for about 1 minute. Then stop rotation and check for abnormal heating on the outer surface. If abnormal heating is detected, stop using the handpiece and contact your Authorized NSK Dealer.
- 5) Operate the handpiece if no abnormalities are observed.

## 6. Irrigation Nozzle

Insert the Irrigation Nozzle (Option) into the handpiece. Then push the Irrigation Tube into the nozzle securely.

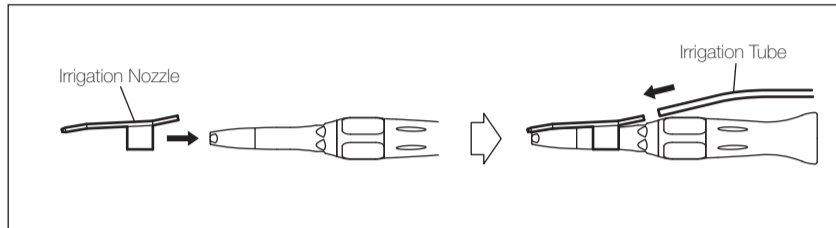


Fig. 4

### \*Irrigation Nozzle

for SGA-ES, SGA-E2S, SGS-ES, SGS-E2S: Order Code H263018

for SGA-EM, SGA-E2M, SGS-EM, SGS-E2M: Order Code H263023

for SGA-EL, SGA-E2L, SGS-EL, SGS-E2L: Order Code H263024

## 7. Post-use Maintenance

Post-use Maintenance includes cleaning, lubricating, and sterilization.

### ⚠ WARNING

**Immediately after a surgery, the handpiece should be cleaned, lubricated and sterilized. Failure to properly maintain the handpiece can lead to contaminants remaining inside the handpiece. Unremoved blood may result in product failure due to the internal blood coagulation. Improper maintenance may also lead to overheating, causing burn injuries, product failure, or difficulty in attaching and detaching the bur.**

### (1) Cleaning

- 1) Clean debris from the surface of the handpiece with running water and wipe to remove moisture.



This icon denotes that the product can be washed via thermo-disinfectant.

Refer to the thermo-disinfectant manual.

### ⚠ CAUTION

After washing with thermo-disinfectant and prior to lubrication, dry the product until all internal moisture is thoroughly removed. Thermo-disinfectant moisture remaining inside the product could reduce the effect of lubrication and could cause corrosion inside of the product.

- 2) Insert the Irrigation Tube firmly into the Irrigation Nozzle and clean the inside of the Irrigation Nozzle with clean water.

### (2) Lubrication

- 1) Push E-type spray nozzle attachment over the lubricant spray nozzle until it firmly seats.
- 2) Remove the bur from the handpiece.
- 3) Insert the spray nozzle in the rear of the handpiece and supply lubricant into the handpiece 2-3 times for 2-3 seconds each time. Repeat lubrication until the oil is free of blood and debris.

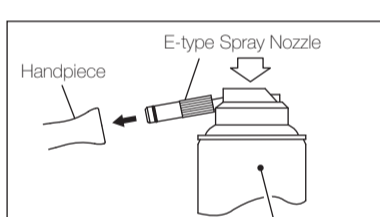


Fig. 5

### ⚠ CAUTION

- The handpiece should be lubricated with lubricant spray (PANA SPRAY Plus/PANA SPRAY).
- Hold the spray can upright.
- If the oil dripping from the handpiece head is NOT clean even after repeated lubrication, internal parts may be worn out. Contact your Authorized NSK Dealer.
- Be sure to hold the handpiece firmly to prevent slipping out of hand by the spray pressure when lubricating.
- Supply lubricant until it comes out of the handpiece head.

### (3) Sterilization

Sterilize the handpiece by autoclave sterilization. Sterilization is required after each patient as noted below.

#### ■ Autoclave Procedure

- 1) Insert into an autoclave pouch. Seal the pouch.
- 2) Autoclavable up to max. 135°C.  
Ex.) Autoclave for 15 min. at 132°C.
- 3) The handpiece should remain in the autoclave pouch until required for use.

\*Sterilization at 121°C for more than 15 minutes is recommended by EN13060 or EN ISO17665-1.

### ⚠ CAUTION

- Be sure to clean and lubricate the handpiece prior to autoclaving. If blood remains on the internal surface it can become clotted and cause product failure.
- 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.
- Do not use high acid water or sterilizing solutions to wipe, immerse or clean the product.
- If the sterilizer chamber temperature may exceed 135°C during the dry cycle then delete the dry cycle.
- 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. 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
Bur mounting/removing	Make sure that the bur can be properly mounted/removed. After mounting, make sure that the bur is firmly fixed by pulling and pushing it.
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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