

Electric Motor with LED

# NLX nano / NLX plus



**MADE IN JAPAN**

Please read these Instructions For Use carefully before use, and file for future reference.

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## Safety Notes Before You Begin

When operating this motor always consider the safety of the patient.

- Interference may occur when used on patients with cardiac pacemakers.
- This system emits electromagnetic fields, which means there are some potential risks. The malfunctioning of implantable devices such as cardiac pacemakers and ICDs (implantable cardioverter defibrillator) is possible:
  - Ask patients and users if they have an implanted device before using this product. Explain the circumstances to them.
  - Weigh the risks and benefits.
  - Keep this product away from implanted devices.
  - Make appropriate emergency provisions and take immediate action if patients become ill.
  - Symptoms including a raised heartbeat, irregular pulse, and dizziness may signal problems with a cardiac pacemaker or ICD.

## Specifications

Model	NLX nano	NLX plus
Maximum Rated Input	Electric voltage 19V~	Electric voltage 25V~
	Electric current 5A	Electric current 5A
Maximum Rotation Speed	1,000 - 40,000 min <sup>-1</sup>	100 - 40,000 min <sup>-1</sup>
Maximum Torque	3.4 N-cm	4.0 N-cm
Dimensions	70 mm length x 22 mm dia.	77 mm length x 22 mm dia.

Spray Supplying Water	> 65 mL/min (29 psi/0.2MPa)
Chip Air	> 1.5 L/min (29 psi/0.2MPa)
Coolant Air	> 6.5 L/min (29 psi/0.2MPa)



## **CAUTION - Notes for Electric Motor Operation**

- Check the tubing and the connection tubes of the electric motor for damage before assembling the motor.
- Make sure that the motor tubing is not kinked.
- Prevent the motor tubing from coming into contact with sharp objects.
- Do not connect or disconnect the motor tubing until the motor has completely stopped.
- Always follow recommendations made by the manufacturer of the transmission instrument and the rotary instrument. Do not exceed the manufacturer's recommended motor speed.
- Check the motor for tightness, vibration, noise, and overheating before using it in the patient's oral cavity. If any abnormalities are found, stop using the motor immediately and contact an authorized dealer.
- Always ensure the correct operating conditions.
- Always ensure the correct supply voltage.
- Do not use the motor without sufficient air coolant. The misuse may result in surface temperature around 60°C (140°F).

- Use only potable water and air from dental units for the supply.
- Check that air supply is dry and free from contamination, dust, salt, sulfur, and oil.
- The motor must be kept in suitable conditions including atmospheric pressure, temperature, humidity, and ventilation.
- Flammable Gases - The electric motor system is not suitable for use in the presence of flammable anesthetic mixture with air, oxygen or nitrous oxide, where such gases may accumulate in concentration in a closed space.



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**NOTE** The *Regulatory Information and Specifications* document is delivered with A-dec dental device equipment as mandated by agency requirements. If you need this information, please go to the Document Library at [www.a-dec.com](http://www.a-dec.com).

For information on touchpad motor settings, see the *Instructions For Use* that came with your delivery system.

# 1. Connect the Motor and Attachment

## 1-1 Connect/ Disconnect the Motor and Motor Cord

Align and firmly insert the motor pins into the pin holes of the motor cord connector. Fasten the motor cord nut securely (Fig. 1).

To remove the motor cord from the motor, unscrew and detach the motor cord nut, and gently pull out the motor cord connector.

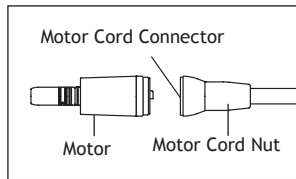


Fig. 1

## 1-2 Connect / Disconnect the Motor and Attachment\*

To install the E-type attachment on the motor, properly align the attachment with the motor insert, connect, then turn until you hear a click (positioning pins are aligned).

To remove the attachment, simply pull out the attachment from the motor.

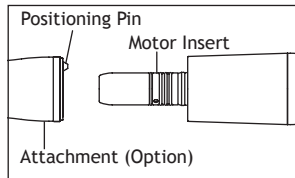


Fig. 2

*\*Attachments are not included.*



## CAUTION - Notes for Electric Motor System

- Do not connect or disconnect the attachment until the motor has completely stopped.
- The operation of this motor is permitted only on dental units which correspond to the standards IEC 60601-1 (EN 60601-1) and IEC 60601-1-2 (EN 60601-1-2) or as labeled.
- The dental unit control shall comply with IEC 60601-1 requirements for output power.
- Electrical safety is inherent in equipment grounding and insulation.
- The electric motor duty cycle is 40 percent with a running time of 2 minutes and an idle time of 3 minutes.
- The power supply unit must be a sealed transformer and comply with the following requirements:
  - Compliance with leakage current requirements is assured by installation of the equipment according to the manufacturer's instructions.
  - Secondary voltage circuits must be non-grounded.
  - The secondary circuits must be protected against short-circuiting and overloading.

## 2. Sterilization

We recommend an autoclave for motor sterilization. Sterilization is required the first time you use the motor and after each patient as noted below.

- 1) Turn off the power.
- 2) Detach the motor from the motor cord. (Refer to 1-1 Connecting / Disconnecting the Motor and Motor Cord)
- 3) Clean the motor surface with a brush. (Do not use a metal brush). Wipe the motor surface with a soft cloth moistened with disinfecting alcohol.
- 4) Screw the motor cap to the motor. Attach the autoclave plug to the motor insert.
- 5) Place the motor in an autoclave pouch. Seal the pouch.
- 6) Autoclave for 20 min. at 121°C or 15 min. at 132°C (135°C max).\*
- 7) Keep the motor in the autoclave pouch until you use it.

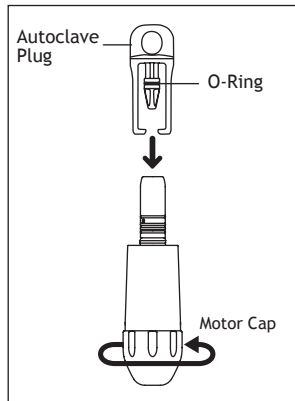


Fig. 3





## CAUTION - Notes for Electric Motor Sterilization

- Never sterilize the motor tubing.
- Autoclave the electric motor for 20 min. at 121°C (250°F) or 15 min. at 132°C (270°F). Do not exceed 135°C (275°F).
- Do not autoclave the motor, even when it is bagged, together with other instruments, from which chemicals are not sufficiently cleaned. This will help prevent discoloration and/or damage to the plating of the motor.
- Do not submerge the motor in liquid.
- Do not wash or wipe off the motor using a solution with oxidation potential (strong acid, super acid solution), sterilization solution, strong alkaline solution, or functional water.
- Do not sterilize the electric motor using plasma or ethylene oxide gas (EOG) sterilization.
- Do not sterilize with debris on the surface. It may cause rust.
- Do not touch the motor immediately after sterilization. It may be very hot.
- Do not use the autoclave plug to hang the motor. The motor could fall resulting in damage.
- Hang the autoclave plug in a known location so you will not lose it.

### 3. Maintenance

If the O-ring becomes damaged, if it is difficult to connect the attachment, or if air or water begins to leak, replace the O-ring. Remove the O-ring at the motor insert with an appropriate tool. Install the new O-rings onto the groove.

- O-ring (Blue): 0313084070
- O-ring (Black): 0312074080
- O-ring (Autoclave Plug): 0312457102

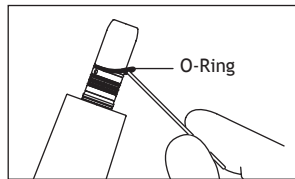


Fig. 4

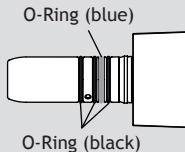


**CAUTION** The dental motor should be maintained according to the manufacturer's recommendations and in line with infection control procedures for the safety and well-being of patients. Improper use, e.g. missing hygienic maintenance, or non-compliance with our instructions of the use of accessories and spare parts which are not approved by A-dec, invalidates all claims under warranty and any other claims.



## CAUTION - Notes for Electric Motor Maintenance

- There are four O-rings on the motor insert. The blue O-ring is thinner than the other three O-rings. Make sure all O-rings are placed in the proper position.
- Do not use the autoclave plug without the mounting O-ring. It may cause a malfunction.
- If an O-ring becomes damaged, replace it immediately.
- The following may occur if an O-ring becomes damaged:
  - Air/Water leak
  - Air/Water does not function properly with the attachment
  - Vibration
  - The attachment is difficult to connect/disconnect
- Care should be taken when using any attachment that requires lubrication (E-type attachment). Following lubrication, stand the attachment vertically until excess lubricant has drained. Wipe the attachment and connect it to the motor.



## 4. Troubleshooting

Problem	Cause	Solution
Motor Does Not Run at Startup	The motor cord may not be connected correctly.	Check the connection.
Motor Runs, Then Stops	A malfunction, overload, break, or incorrect usage may have occurred.	Stop pressing the foot control. Turn off the delivery system master toggle and turn it back on. If the motor continues to malfunction, contact your dealer.
LED Does Not Light	The LED may have reached the end of its life.	Contact your dealer.
Water Leakage	The motor cord may not be connected correctly.	Check the connection.
	An O-ring may be damaged.	Install a new O-ring.

## Warranty

A-dec warrants all products against defects in materials or workmanship for one year from time of delivery. A-dec's sole obligation under the warranty is to provide parts for the repair, or at its option, to provide the replacement product (excluding labor). The buyer shall have no other remedy. All special, incidental, and coincidental damages are excluded. Written notice of breach of warranty must be given to A-dec within the warranty period. The warranty does not cover damage resulting from improper installation or maintenance, accident or misuse. The warranty does not cover damage resulting from the use of cleaning, disinfecting or sterilization chemicals and processes. Failure to follow instructions provided in the A-dec Instructions For Use (operation and maintenance instructions) may void the warranty. No other warranties as to merchantability or otherwise are made. For service information, contact your local authorized A-dec dealer. Check with local codes and ADA (Americans with Disabilities Act) requirements for installation of this product.



**CAUTION** U.S. Federal law restricts this device to sale by or on the order of a dentist, physician, or any other practitioner licensed by the law of the state in which he or she practices to use or order the use of this device.

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*Note: Specifications are subject to change without notice.*

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