

Pencil Type Electromotive Polisher MINI-LUSTER

OPERATION MANUAL

Thank you for purchasing the Pencil Type Electromotive Polisher " MINI-LUSTER ". This Attachment is designed for polishing narrow grooves, details, etc. The Emax EVOLution control unit and motor or Espert 500 control unit and motor or ROTUS air motor are required to drive this Attachment. Read this and all the associated component Operation Manuals carefully before use. Always keep this Operation Manual in a place where a user can be referred to for reference at any time.

1. CAUTIONS FOR HANDLING AND OPERATION

- Read these warnings and cautions carefully and only use in the manner intended.
- These warnings and cautions are intended to avoid potential hazards that could result in personal injury to the operator or damage to the device. These are classified as follows in accordance with the seriousness of the risk.

Class	Degree of Risk
WARNING	A safety hazard could result in bodily injury or damage to the device if the safety instructions are not properly followed.
CAUTION	A hazard that could result in light or moderate bodily injury or damage to the device if the safety instructions are not followed.

WARNING

- This Attachment is designed for hand use. Never install this Attachment or any hand tool on a machine such as a special purpose machine, NC lathe or mill.
- Do not exceed the " Maximum Allowable Motor Rotation Speed " (Refer to " 6 - 1 Specifications ").
- When sensing that the Attachment and motor are overheated during operation, reduce the working force or the motor rotation speed, or stop the operation until the Attachment cools down before restarting.
- Do not touch tool-holder, tool etc, while they are in the reciprocating motion.
- Wear safety glasses, dust mask, and use a protective cover around the Attachment whenever the Attachment is reciprocating.
- Be sure to keep this Attachment / motor away from water. It could cause an electric shock to the operator.
- Make sure that the transmission clutches engage firmly, when connecting the motor to the Attachment before use.
- Check if the tool / file has been mounted firmly, before operation.
- Do not apply excessive force. This may cause tool slippage, tool damage, injury to the operator, and loss of concentricity and precision of the this Attachment and motor.
- Repeated or long-term exposure to excessive vibration may cause temporary or permanent physical injury, particularly to the hands and the arms.
- Suitable gloves should be worn to reduce the vibration effects on the user.

CAUTION

- Do not drop or hit this Attachment, as shock can damage to the internal components.
- When cleaning an Attachment, stop the motor and remove dirt with a brush or a cloth. Do not blow compressed air into the Attachment. Foreign particles or cutting chips may get into the ball bearings.
- Always clean the tool shank before installing the tool in the Attachment.
- Select suitable products or tools for each application. Do not exceed the recommend conditions as abnormal vibrations may occur.
- Keep everything in order not to place the rag which could be caught near the hand tool.
- Stop operating immediately when abnormal rotation or any unusual vibrations are observed. Afterwards, please check the content of section " 9. TROUBLESHOOTING ".
- Always check if the tool, cutting tool-holder and tool fastening screw are damaged before and after operating.
- No lubrication is required because grease impregnated ball bearings are used.
- After installation, repair, initial operation, or long periods of non operation, please carry out break-in as follow. Start rotating slowly and over a short period of 5 - 10 minutes, increase speed gradually until allowable maximum speed.
- Do not disassemble, modify or attempt to repair the Attachment. Additional damage will occur to the internal components. Service must be performed by NSK NAKANISHI or an authorized service center.

2. BASIC PACKAGE

When opening the package, check if it includes all items listed in " Table.1 Packing List Contents ".

In the event of any shortage, please contact either NAKANISHI (see the " 4. CONTACT US " section) or your local dealer.

Table. 1 Packing List Contents

Attachment • • 1pc. 	Damper Extension • • 1pc. 	Ceramic Fiber Holder • • 1pc.
Electroplated Diamond File (1.2 x 4 x 50 #100) • • 1pc. 	Ceramic Fider Grindstone Tip (1 x 6 x 50 #1200) • • 1pc. 	Allen Wrench (1.5mm) • • 1pc.
Operation Manual • • 1set 		

3. WARRANTY

We provide a limited warranty for our products. We will repair or replace the products if the cause of failure is due to the following manufactures defects. Please contact us or your local distributor for details.

- Defect in manufacturing.
- Any shortage of components in the package.
- Where damaged components are found when initially opening the package.
(This shall not apply if the damage was caused by the negligence of a customer.)

4. CONTACT US

For your safety and convenience when purchasing our products, we welcome your questions. If you have any questions about operation, maintenance and repair of the product, please contact us.

Contact Us

For U.S. Market

Company Name

: **NSK America Corp.**
Industrial Div.

Business Hours

: 8:00 to 17:00 (CST)
(closed Saturday, Sunday and Public Holidays)

U.S. Toll Free No.

: +1 800 585 4675

Telephone No.

: +1 847 843 7664

Fax No.

: +1 847 843 7622

Website

: www.nskamericacorp.com

For Other Markets

Company Name

: **NAKANISHI INC.**

Business Hours

: 8:00 to 17:00 (JST)
(closed Saturday, Sunday and Public Holidays)

Telephone No.

: +81 289 64 3520

e-mail

: webmaster-ie@nsk-nakanishi.co.jp

5. FEATURES

- Ideal for grinding or polishing narrow grooves due to this Attachment's slim body design.
- This Attachment can be used easily with ceramic fiber stones or flat tyoe files with the provided ceramic fiber holder.

6. SPECIFICATIONS AND DIMENSIONS

6 - 1 Specifications

Model	ML - 8	ROTUS Air Motor (IM - 301, IM - 300)	EML - 8
Applicable Motor	Emax EVOLution Motor (ENK - 410S, ENK - 250T)		Espert 500 Motor (ENK - 500C, ENK - 500T)
Applicable Control Unit	Emax EVOLution Control Unit	-	Espert 500 Control Unit
Maximum Allowable Motor Rotation Speed	Less than 25,000min ⁻¹ (rpm)		
Stroke	0.8mm		
Reciprocating Stroke	0 - 6,380 times / min		
Weight	130g		
Vibration Level	Less than 2.5m / s ²		
Noise Level at 1m distance	Less than 70dB (A)		

	Temperature	Humidity	Atmospheric Pressure
Operation Environment	0 - 40°C	MAX.75% (No condensation)	800 - 1,060hPa
Transportation and Storage Environment	-10 - 50°C	10 - 85%	500 - 1,060hPa

WARNING

- Do not exceed the " Maximum Allowable Motor Rotation Speed ".
- When sensing that the Attachment and motor are overheated during operation, reduce the working force or the motor rotation speed, or stop the operation until the Attachment cools down before restarting.

6 - 2 Outside View

① ML - 8

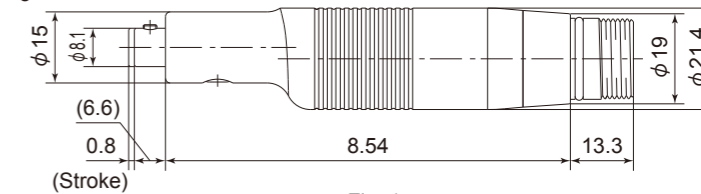


Fig. 1

② EML - 8

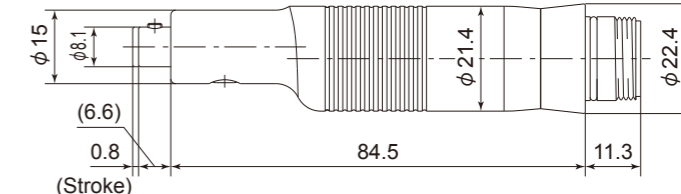


Fig. 2

7. CONNECTION OF THE ATTACHMENT TO THE MOTOR

CAUTION

Make sure your hands and all interlocking parts of the Attachment and motor are clean before connecting the motor to the Attachment. This is critical to preventing contaminants from entering the motor or Attachment.

Align the thread on the front end of the motor and the rear of the Attachment, and turn the Attachment clockwise. If the drive shaft of the motor does not engage properly to the drive dog on the Attachment, it may only turn approximately two threads before stopping. DO NOT FORCE THEM TOGETHER. Loosen the Attachment from the motor, swing the tool holder a few times to engage the drive shaft and a the drive dog, and make the finally tighten the this Attachment firmly.

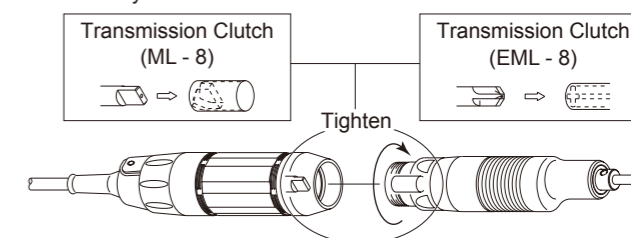


Fig. 3

8. CHANGING THE TOOL

CAUTION

- For your safety, remove the plug of motor of control unit, before replacing the tool.
- Make sure the tool has been mounted firmly, before motor rotation.

Max. shank diameter ϕ 3.5mm is available. Loosen the thread on the top of the this Attachment by allen wrench (1.5mm) to insert the tool.

And tighten the thread by the allen wrench (1.5mm). Allen wrench to fasten the tool firmly.

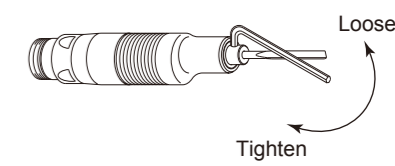


Fig. 4

9. TROUBLESHOOTING

If a problem or concern occur, please check the following items prior to consulting your dealer.

Trouble	Cause	Inspection / Corrective Action
Reciprocating stroke is poor.	Internal components are worn.	Replacing the internal components. (Return to NAKANISHI dealer service.)
Overheating during reciprocating motion.	Ball bearing worn out by the reason ground particles stock in the air od ball bearing.	Replace the ball bearings. (Return to NAKANISHI dealer service.)
Abnormal noise or unusual vibration during reciprocating motion.	Grinding debris has contaminated the ball bearings. The ball bearings are worn.	
Tool slippage.	The tool mounting setscrew has loosened.	Check if the tool mounting setscrew is properly positioned. Clean it and retighten.

10. DISPOSAL OF THE ATTACHMENT

When disposal of an Attachment is necessary, follow the instructions from your local government agency for proper disposal of industrial components.