

## Fine Belt Sander

# KBS - 101 • EBS - 101

For Emax EVOLution / ROTUS Air Motor

For Espert 500

## OPERATION MANUAL

OM-K0478E 003

Thank you for purchasing this Attachment. The Emax EVOLution Control Unit and Brushless Motor, or ROTUS Air Motor, or Espert 500 Control Unit and Brushless 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 referred to for reference at any time.

### 1. CAUTIONS FOR HANDLING AND OPERATION

- Read these 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
<b>WARNING</b>	A safety hazard could result in bodily injury or damage to the device if the safety instructions are not properly followed.
<b>CAUTION</b>	A hazard that could result in light or moderate bodily injury or damage to the device if the safety instructions are not followed.

#### WARNING

- ① 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.
- ② Do not exceed the " Maximum Allowable Motor Rotation Speed " (Refer to " 3 - 1 Specifications ").
- ③ 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.
- ④ Do not touch the belt and pulley while it is rotating. It is very dangerous.
- ⑤ Always use a protective cover, safety glasses or face shield anytime this device is in use.
- ⑥ Do not exceed the maximum recommended allowable speed. For your safety, use speeds below the maximum allowable speed.
- ⑦ Do not apply heavy pressure to the belt or try to polish with the edge of the belt as the belt may break and injure the operator.

#### CAUTION

- ① Do not drop or hit this Attachment, as shock can cause damage to the internal components.
- ② Be sure to clean the each part before replacing the belt. If polishing particles to the belt or Attachment damage to the belt or Attachment can occur due to the loss of precision.
- ③ When cleaning a Attachment, stop the motor and remove dirt with a brush or a cloth. Do not blow compressed air into the Attachment. Foreign particles or polishing debris may get into the ball bearings.
- ④ Use for dry sanding only, the FINE BELT SANDER is not designed for wet sanding. Water penetration into the bearings will cause damage to the bearings.
- ⑤ Stop operating immediately when abnormal rotation or any unusual vibrations are observed. Afterwards, please check the content of Section 8 "TROUBLESHOOTING".
- ⑥ Always check if the belt and the each part are damaged before and after operating.
- ⑦ No lubrication is required because grease impregnated ball bearings are used.
- ⑧ After repair, initial operation, or long periods of non operational time, please use the following break-in procedure. Start rotating slowly and over a short period of time, then increase the speed gradually until reaching the maximum allowable speed.
- ⑨ 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.
- ⑩ Do not leave the belt sander in direct sun light or extremely dry place. It causes deterioration.

### 2. FEATURES

- ① Light-weight, compact, minimal vibration and a small diameter grip design keep the hand free from fatigue for long ,continuous operation.
- ② The angle of the belt section is fully adjustable.
- ③ Exchanging the belt simply done by lever release.

### 3. SPECIFICATIONS AND DIMENSIONS

#### 3 - 1 Specification

Model	KBS - 101	EBS - 101
Belt speed	0 - 705m / min (11.8m / s)	
Maximum Allowable Motor Rotation Speed	Less than 30,000min <sup>-1</sup> (rpm)	
Belt Width x all circumferences	8mm, 6mm, 4mm x all circumferences 300mm	
Applicable Motor	ENK - 410S, ENK - 250T (Emax EVOLution) IM - 301, IM - 300 (ROTUS)	ENK - 500C, ENK - 500T (Espert 500)
Weight	350g	355g
Vibration Level	Less than 2.5m / s <sup>2</sup>	
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

Standard Accessories	
• Allen Wrench (3mm) • • 1pc.	Sand Belt • • 9 categories x 2pcs.

#### 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.

#### 3 - 2 Outside View

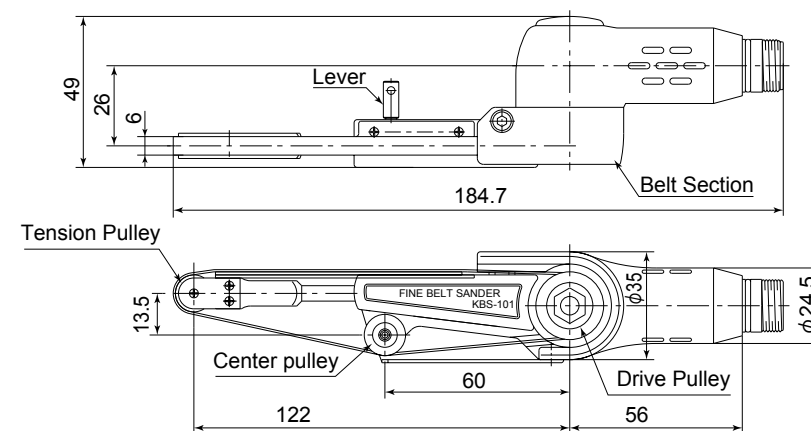


Fig. 1

### 4. CONNECTING TO THE MOTOR

#### CAUTION

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

Align the threads on the front end of the motor and the rear end 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. Turn the Attachment back a few threads, rotate the Attachment by hand to engage the drive shaft and the drive dog, and screw them together.

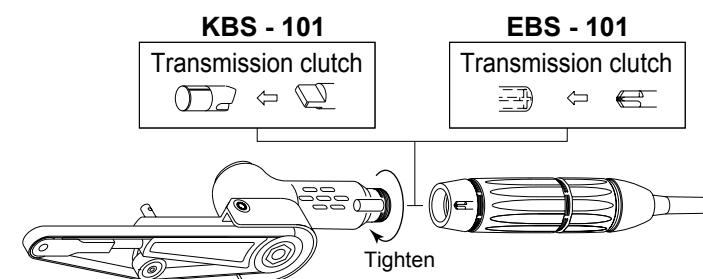


Fig. 2

## 5. CHANGING THE BELT

### ⚠ WARNING

Only change belts after the motor and the attachment have come to a complete stop. Failure to follow this instruction may result in injury to the operator or damage to the attachment and the motor.

### ⚠ CAUTION

Do not run the motor until after confirming that the belt is mounted properly.

#### Removing the Belt

- 1 Pull the Lever back in the direction indicated by the arrow.
- 2 Remove the belt from the Drive Pulley.

#### Mounting the Belt

- 1 Place the new belt on Drive Pulley.
- 2 Pull the Lever back in the direction indicated by the arrow
- 3 Align the belt on the front and center pulley.

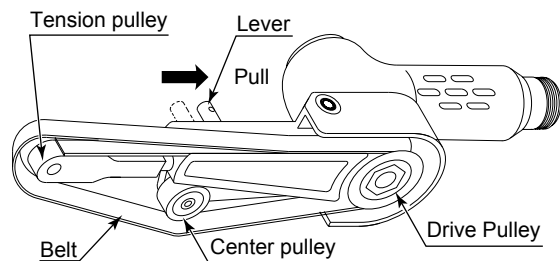


Fig. 3

## 6. ADJUSTING THE BELT ANGLE

### ⚠ CAUTION

Make sure to fasten the belt section tightly, it can cause injury if it moves during operation.

- 1 Loosen the bolt with the provided allen wrench.
- 2 Move the belt section to the desired angle.
- 3 Use the allen wrench to tighten the bolt and secure the belt section

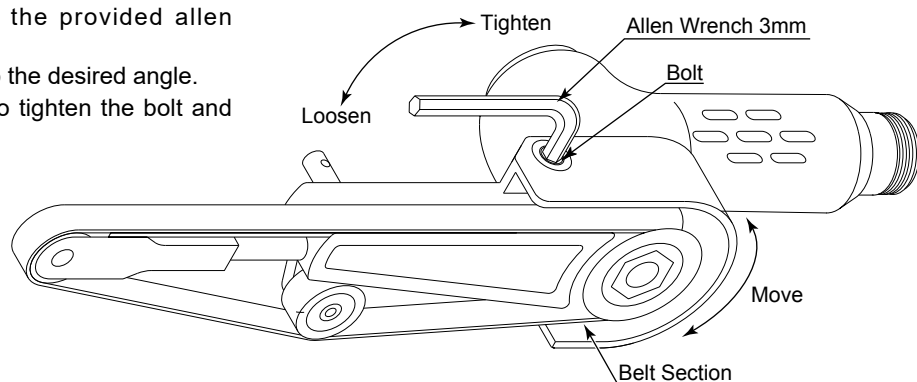


Fig. 4

## 7. APPLICATION EXAMPLES

### ① Polishing Radiuses

When polishing radiuses run the motor in the forward direction and polish with the unsupported belt section between the front and center pulleys.

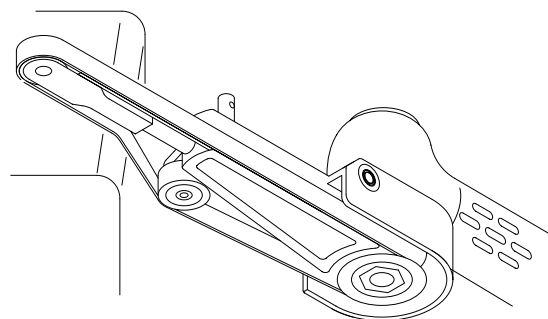


Fig. 5

### ② Polishing Flat Surfaces

When polishing flat surfaces, run the motor in the reverse direction and polish with rigid portion of the belt.

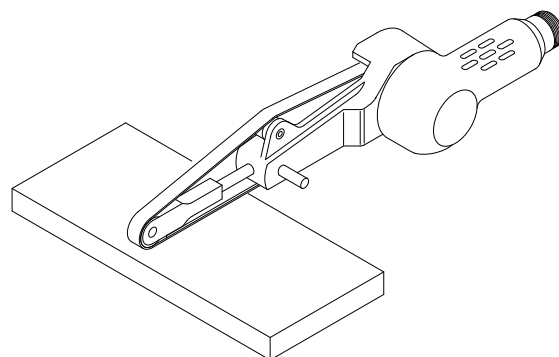


Fig. 6

### ③ Polishing Grooves

When polishing grooves run the motor in the reverse direction and polish with rigid portion of the belt. Only use on grooves wider than 8.5mm.

### ⚠ CAUTION

Do NOT use heavy side loads on the belt, as it may fly off.

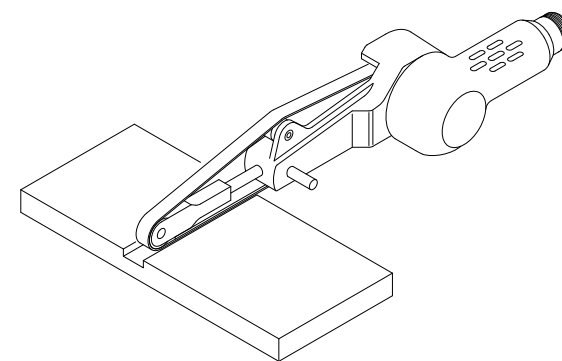


Fig. 7

## 8. TROUBLESHOOTING

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

Trouble	Cause	Inspection / Corrective Action
Drive pulley does not run.	The ball bearings are damaged.	Replace the ball bearings. (Return to NAKANISHI dealer service.)
	The gear is damaged.	Replace the gear. (Return to NAKANISHI dealer service.)
	Motor is broken.	Replace the motor. (Return to NAKANISHI dealer service.)
Overheating during rotation.	Polishing debris has contaminated the ball bearing, and the ball bearings are damaged.	Replace the ball bearings. (Return to NAKANISHI dealer service.)
Abnormal vibration or noise during rotation.	Tension pulley is damaged.	Replace the tension pulley.
	Center pulley is broken.	Replace the center pulley. (Return to NAKANISHI dealer service.)
	Polishing debris has contaminated the ball bearings.	Replace the ball bearings. (Return to NAKANISHI dealer service.)
	The ball bearings are worn.	Replace the ball bearings. (Return to NAKANISHI dealer service.)
Belt is broken.	The gear is worn.	Replace the gear. (Return to NAKANISHI dealer service.)
	The belt is worn or degradation.	Replace the belt.
Belt is comes off.	Rapidly overload.	Remove overload.
	Tension pulley is worn.	Replace the tension pulley.
The belt angle adustment dose not work.	Fixing bolt part is deformed.	Replace the fixing bolt part.
The belt exchange lever does not move.	The polishing debris is blocked.	Clean and remove the polishing debris.

## 9. 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.

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