

Esport Attachment EHG-400 OPERATION MANUAL

Thank you for purchasing Esport Attachment " EHG - 400 ". This attachment is torque type attachment and tool to the $\phi 6\text{mm}$ diameter can be used. The Esport500 control unit and Esport500 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
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 touch the cutting tool while it is rotating. It is very dangerous.
- Always wear safety glasses, dust mask and use a protective cover.
- When installing a cutting tool, tighten the collet chuck correctly and recheck the collet chuck before use. Do not over-tighten the collet chuck. This may cause damage to the spindle.
- Do not use grindstones with an outside diameter over $\phi 15\text{mm}$.
- Do not exceed 13mm of overhang for mounted grindstones as shown in Fig. 1.
If the overhang must exceed 13mm, reduce the motor speed in accordance with Table 1.
- Do not use bent, broken, chipped, out of round or sub-standard cutting tools as they may cause shatter or explode.
The cutting tool with cracked, bended may cause some injury to operator.
When using a new cutting tool, rotate it in a low speed and increase speed gradually for safety.
- Always operate cutting tools within the cutting tool manufacturer's recommended speed limits. Use of a cutting tool higher than the manufacturer's recommended speed limits could cause damage to the spindle and injury to the operator.
- Do not apply excessive force. This may cause tool slippage, tool damage, injury to the operator, loss of concentricity and precision.

Table 1. Overhang and Speed

Overhang (mm)	Max. Speed (min^{-1}) (rpm)
20	$N \times 0.5$
25	$N \times 0.3$
50	$N \times 0.1$

*N=Max. Operating Speed with 13mm overhang.

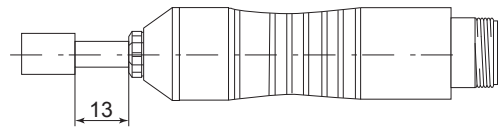


Fig. 1

CAUTION

- Do not drop or hit this Attachment, as shock can damage to the internal components.
- Be sure to clean the collet chuck, the spindle taper and threads before replacing the cutting tool. If ground particles or metal chips stick to the inside of spindle or the collet chuck, damage to the collet chuck or spindle can occur due to the loss of precision.
- 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 cutting tool shank before installing the tool in the spindle.
- When sizing the correct collet chuck size to the cutting tool shank diameter, a tolerance of $+0 \sim -0.01\text{mm}$ is strongly recommended. A tool shank within the $+0 \sim -0.1\text{mm}$ range is mountable, however, this may cause poor concentricity and or insufficient cutting tool shank gripping force.
- Select suitable products or tools for each application. Do not exceed the capabilities of the attachment or cutting tools.
- 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 " 7. TROUBLESHOOTING ".
- Always check if the cutting tool, collet chuck is damaged before and after operating.
- If the collet chuck show signs of wear or damage, replace it before a malfunction or additional damage occurs.
- No lubrication is required because grease impregnated ball bearings are used.
- 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.
- 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. FEATURES

- Torque type attachment used with $\phi 6.35\text{mm}$ collet chuck diameter.
- Nicely fits in hand-grip.

3. SPECIFICATIONS AND DIMENSIONS

3 - 1 Specifications

Model	EHG-400
Allowable Speed	40,000 min^{-1} (rpm) (Continuous use : Less than 30,000 min^{-1} (rpm).)
Applicable motors	ENK-500C, ENK-500T
Vibration Level	Less than 2.5m/s^2 .
Noise Level	Less than 70dB (A).
Weight	110g

Standard Accessories

- Collet Chuck* $\phi 6.0\text{mm}$ (CHG-6.0) or $\phi 6.35\text{mm}$ (CHG-6.35) • 1pc.
(For U.S. market $\phi 6.35\text{mm}$ (CHG-6.0))
- Bar Wrench (K-212) • 1pc.
- Wrench (10 × 10) • 1pc.
- Operation Manual • 1set.

*The collet chuck is attached to the spindle.

<Option>

Collet Chuck (CHG-□□)	$\phi 1.0\text{mm}$, $\phi 1.5\text{mm}$, $\phi 1.6\text{mm}$, $\phi 2.0\text{mm}$, $\phi 2.5\text{mm}$, $\phi 3.0\text{mm}$, $\phi 4.0\text{mm}$, $\phi 5.0\text{mm}$, $\phi 6.0\text{mm}$, and $\phi 2.35\text{mm}$, $\phi 3.175\text{mm}$, $\phi 4.76\text{mm}$, $\phi 6.35\text{mm}$
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3 - 2 Outside View

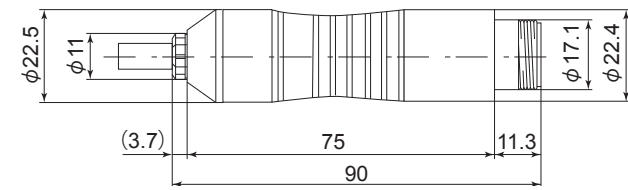


Fig. 2

4. CONNECTING 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 in preventing contaminants from entering the motor or Attachment.

Align the thread 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. Loosen the Attachment from the motor, rotate the Attachment shaft by hand then re-try. The drive shaft and the drive dog must be fully engaged.

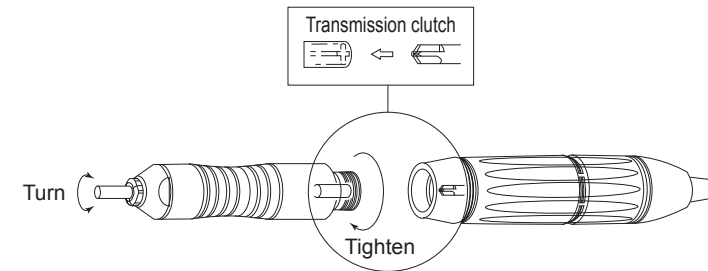


Fig. 3

5. CHANGING THE CUTTING TOOL

CAUTION

Do not tighten the collet chuck without inserting a cutting tool or dummy bur, as this will damage the collet chuck.

- Align the hole in the head with the hole in the spindle and insert the provided bar wrench.
- Place the provided 10mm wrench on the collet chuck and turn counterclockwise to remove the cutting tool.
- Insert the new cutting tool with the overhang as shortly as possible. Turn the wrench clockwise to tighten.

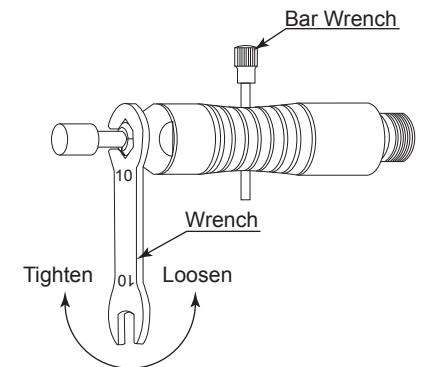


Fig. 4

6. REPLACING THE COLLET CHUCK

- Remove the tool as detailed in Section 5. "CHANGING THE CUTTING TOOL" procedure and remove the collet chuck (Fig. 5).
- Insert the bar wrench provided into the hole in the housing, align the spindle to lock.
- Rotate the collet chuck counterclockwise to release.
- Insert the new collet chuck into the spindle and turn clockwise.

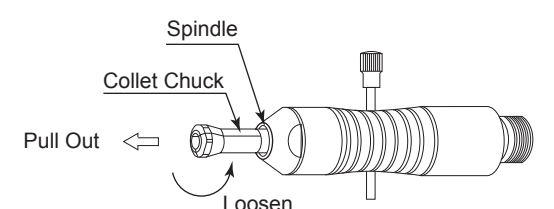


Fig. 5

7. TROUBLESHOOTING

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

Trouble	Cause	Inspection/Corrective Action
Spindle does not run.	The ball bearings are damaged.	Replace the ball bearings. (Return to NAKANISHI dealer service.)
	Motor is broken.	Replace the motor. (Return to NAKANISHI dealer service.)
Overheating during rotation.	Cutting 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.	Using bent cutting tool.	Replace the cutting tool.
	Cutting debris has contaminated the ball bearings. The ball bearings are worn.	Replace the ball bearings. (Return to NAKANISHI dealer service.)
Cutting tool slippage.	Collet chuck is not correctly installed. The collet chuck is worn or damaged.	Check and clean the collet chuck. Reinstall the collet chuck and re-tighten. Check the accuracy.
	Collet chuck is worn.	Replace the collet chuck.
High run-out.	Bent the cutting tool.	Replace the cutting tool.
	Collet chuck is worn.	Replace the collet chuck.
	Inside of the spindle is worn.	Replace the spindle shaft. (Return to NAKANISHI dealer service.)
	Contaminants inside the collet chuck or the spindle. The ball bearings are worn.	Clean the collet chuck and the inside of the spindle. Replace the ball bearings. (Return to NAKANISHI dealer service.)

8. DISPOSAL OF THE ATTACHMENT

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