

Minimo[®] HEAVY DUTY CLAMP HEAD

FX91

OPERATION MANUAL

MINITOR CO., LTD. JAPAN

21-1 Ryogoku 3-chome, Sumida-ku, Tokyo 130-0026 JAPAN
Phone +81 3 (6630) 5800 FAX +81 3 (6630) 5795

Products are subject to change without notice.

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 **MINITOR CO., LTD.** JAPAN

Introduction

Thank you for purchasing Minimo ONE Series Heavy Duty Clamp Head.

Read this manual carefully for your safety prior to use. Along with this manual, read manuals of Motor, Power Pack and foot switch, if used, carefully for your understanding of each function. Keep this manual in place reach to easily. Download this manual from our website if lost.

Precautions

- This manual indicates symbols and signal words intending to avoid dangerous operation and handling for potential hazards and accident that could result in personal injury or damage to the product.

Warning and Caution

Possible hazards and damages by wrong handling are classified as Warning and Caution in accordance with seriousness of risk.



Warning
Operation causing of significant and dangerous accident possibly resulting in death or serious injury.



Caution
Operation possibly causing of injury or physical damage on the product.

Warning

- Do not press ON button on DC MOTOR selector and hand selector while collet chuck is in open.
 - Motor may be overheated by energization in condition that motor is locked and may cause of fire and / or malfunction.
- Confirm if handpiece works properly after turning DC MOTOR selector or hand selector on.
 - May cause of fire and / or electric shock by overheating motor in case motor was not working.
 - Cause motor does not work: collet chuck in open, malfunction of handpiece, motor or power pack, etc.
- Wear protective glasses for eye protection and respirator to prevent from dust.
 - May cause of unexpected damage due to chip and dust.
- In case abnormal noise, smoke and / or bad smell occurred, turn power switch off and unplug AC power cord.
 - May cause of fire and / or electric shock.
- Do not disassemble and / or remodel.
 - May cause of fire, electric shock and / or malfunction.
 - May cause of significant influence on safety and performance.
- Communication spark may occur while motor is rotating. Do not use the products near inflammable and explosive material such as thinner and gasoline.
 - May cause of fire and / or malfunction.
- Hold motor (handpiece) tight when turning switch on.
 - May cause of injury and damage on tool by bouncing of motor (handpiece).
- Do not touch rotating object such as Sentan Tool, collet chuck, etc. during operation.
 - May cause of injury and damage on tool.

Caution

- Do not use this product under environment generating corrosive gas . (chlorine gas, hydrogen sulfide, sulfuric acid gas, etc.)
 - May cause of fire, electric shock and / or malfunction.
- Use this product in condition without condensation. May cause of electric shock.
- Use this product within temperature from 0°C to 40°C.
- Keep this product away from children. Do not allow children to operate this product.
- Do not drop and / or hit this product.
- Prevent dust, oil, water, etc. from entering inside. If liquid and / or foreign substances entered, turn power switch off, unplug AC power cord and ask us for repairing.
- Unplug AC power cord for your safety while replacing carbon brushes and other parts.

1. Features

Reinforced housing provides extra rigidity for clamping. Suitable for use with the automatic machinery.

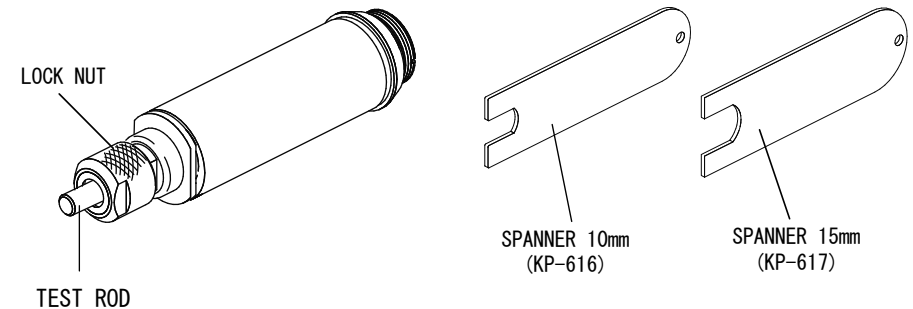
- ◇ Rated Speed : 30,000min⁻¹
- ◇ Applicable Motors : KM113, KM213H, KM213, KM213L, KM113G, KX313
- ◇ The collet chuck φ6.0(KP-126) is mounted.
- ◇ Rated Wheel Diameter : φ30

2. Standard Accessories

- ◇ SPANNER 10mm (KP-616) 1PC.
- ◇ SPANNER 15mm (KP-617) 1PC.

The accessories are subject to change without any notice.

3. Names



4. Installation

4-1. Attaching to the motor

- 1) Insert the heavy duty clamp head onto the motor with placing the claw of the head in a groove of the motor.
- 2) Tighten the joint ring to secure the heavy duty clamp head in position.

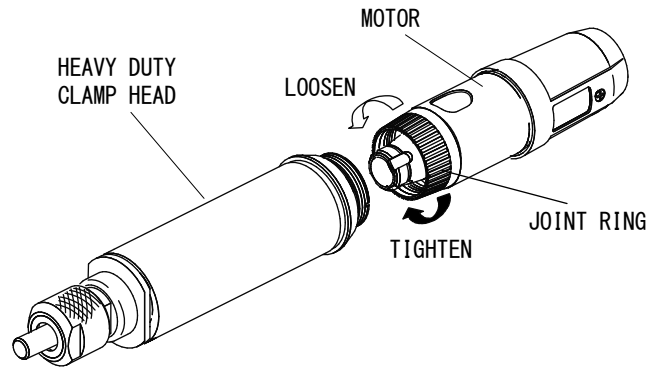


Fig.1



- For your safety, do not connect the motor to the POWER PACK when attaching or detaching the heavy duty clamp head to the motor.
- Please use this in combination with applicable motor. Using this with inapplicable motor may cause malfunction.

4-2. Changing the SENTAN tools

- 1) Hold the motor and turn the collet release ring to the "RELEASE" direction as shown Fig.2. (Collet chuck is in the open position)
- 2) Pull out the test rod or SENTAN tool and insert the SENTAN tool suitable to the work. then, turn the collet release ring back to the "SET" direction securely and collet chuck will close.
- 3) Make sure the tool is set firmly before starting the motor.

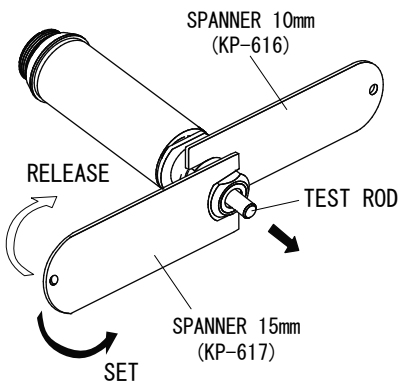


Fig.2

※The FX91 head is shipped with a test rod to protect the collet.
Change it to the SENTAN tool suitable to your work.



- Always keep the power OFF when changing the tools.
- Never turn the collet release lever when the motor rotating.
- Make sure the lock nut is tightened enough otherwise the tool may come out during the running.

4-3. Changing the collet chuck

- 1) Take out the SENTAN tool by turning lock nut the "RELEASE" direction as shown Fig.2.
 - 2) Keep the SPANNER (KP-616) hooking and unscrew the lock nut by hand.
 - 3) Exchange the collet chuck and screw in the lock nut by hand.
- ※In the case when collet chuck is stuck in the spindle, give a slight impact to the collet chuck such as knocking lightly with the SPANNER (KP-616).
- 4) Then, insert the SENTAN tool and tighten the lock nut by the SPANNERS.
 - 5) Make sure the tool is set firmly before starting the motor.

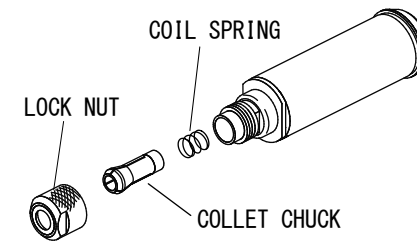


Fig.3



- When loosening and tightening the collet chuck with the SPANNER, always place the test rod in the collet chuck to protect the collet from twisted or broken.

4-4. The collet chuck options

DIAMETER	φ 2.34	φ 3.0	φ 3.175	φ 4.0	φ 5.0	φ 6.0	φ 6.35
CODE NO.	KP-121	KP-122	KP-123	KP-124	KP-125	KP-126	KP-127

5. Sizes

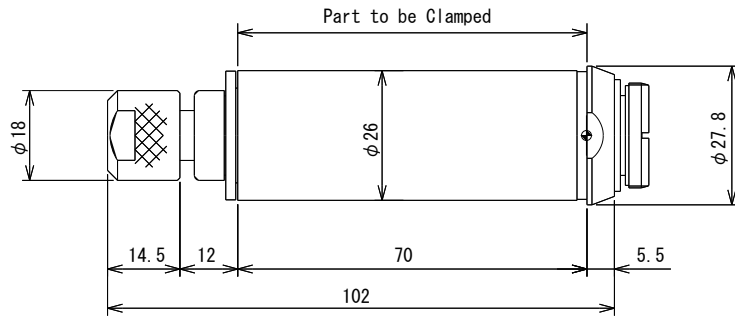


Fig. 4

6. Maintenance

The chips and dust may collect in the collet chuck.
Clean it by taking out the collet chuck from the handpiece.

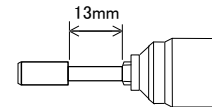
7. Trouble Shooting

Trouble	Check	Remedy
Motor does not run.	Power switch of power pack is OFF.	Turn power switch of power pack ON.
	Carbon brushes are consumed.	Replace carbon brushes to specified ones.
	Collet chuck of handpiece is in open position.	Close collet chuck of handpiece.
Hand switch does not work.	Handpiece is controlled by external signal on power pack.	Control handpiece by external signal. Avoid controlling by external signal.
	Foot switch is connected.	Control by foot switch only.
Overheating while motor is running.	Dust, etc. are stuck on handpiece.	Remove dust, etc.
	Handpiece is used with excessive load.	Use motor within range of white LED indicating range of use on load meter.
High vibration and / or abnormal noise from handpiece.	Same malfunction is occurred in low rotation speed.	Ask for repairing.

If you still have a trouble after applying remedy, malfunction is considered. Ask for repairing.
If you have any question or need further assistance, please contact the store you purchased or us.

General Instructions

- Check if there is scratch, fracture, crack, etc. before using tool.
- Do not exceed and use maximum allowable rotation speed of each tool.
- Make trial run after mounting tool and use after adjusting concentricity by using dressers etc.
- Dress in case of clogging and dulling. Use another tool if clogging and dulling are occurred often.
- Mount tool with care of overhanging within 13 mm for mounted points.



■ Reference for overhanging

Overhanged length of shank [mm]	Allowable Rotation Speed of Tool (as a guide)
20	Max. Speed x 0.5
30	Max. Speed x 0.3
40	Max. Speed x 0.1