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## MRCM MR-X3A

# MRCM MR-X3A End Mill Sharpener Instruction Manual

Model: MR-X3A

## 1. INTRODUCTION

This manual provides detailed instructions for the safe and efficient operation, setup, and maintenance of the MRCM MR-X3A End Mill Sharpener. This machine is designed for regrinding tungsten steel and high-speed steel end mills with 2, 3, or 4 flutes, accommodating diameters from 4mm to 20mm.



**Figure 1:** The MRCM MR-X3A End Mill Sharpener. This image displays the overall structure of the yellow-colored end mill sharpener, including its grinding head, control knobs, and carrying handle.

## 2. SAFETY INSTRUCTIONS

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Always adhere to the following safety guidelines to prevent injury and damage to the machine:

- Read and understand all instructions before operating the machine.
- Wear appropriate personal protective equipment (PPE), including safety glasses and gloves.
- Ensure the machine is placed on a stable, level surface.
- Verify the power supply voltage matches the machine's requirements (220V or 110V with transformer).
- Do not operate the machine with damaged power cords or plugs.
- Keep hands and loose clothing away from moving parts during operation.
- Disconnect power before performing any maintenance or changing accessories.
- Do not attempt to modify the machine.

## 3. PRODUCT OVERVIEW AND COMPONENTS

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The MR-X3A End Mill Sharpener consists of several key components:

- **Grinding Head:** Houses the grinding wheel and collet holder.
- **Collet Holder:** Secures the end mill during grinding.
- **Grinding Volume Adjustment Knob:** Controls the depth of grinding.
- **Power Switch:** On/Off control for the machine.
- **Power Inlet:** Connection point for the power cord, includes a fuse.
- **Collet Storage Drawer:** Stores various collets.

## 4. SETUP

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### 4.1 Unpacking

Carefully remove the sharpener and all accessories from its packaging. Inspect for any damage that may have occurred during transit. Retain the packaging for future storage or transport.

### 4.2 Power Connection

Connect the power cord to the machine's power inlet and then to a suitable power outlet. The machine operates on 220V, but a voltage transformer is provided for 110V operation if required. The power supply interface includes a fuse for protection.

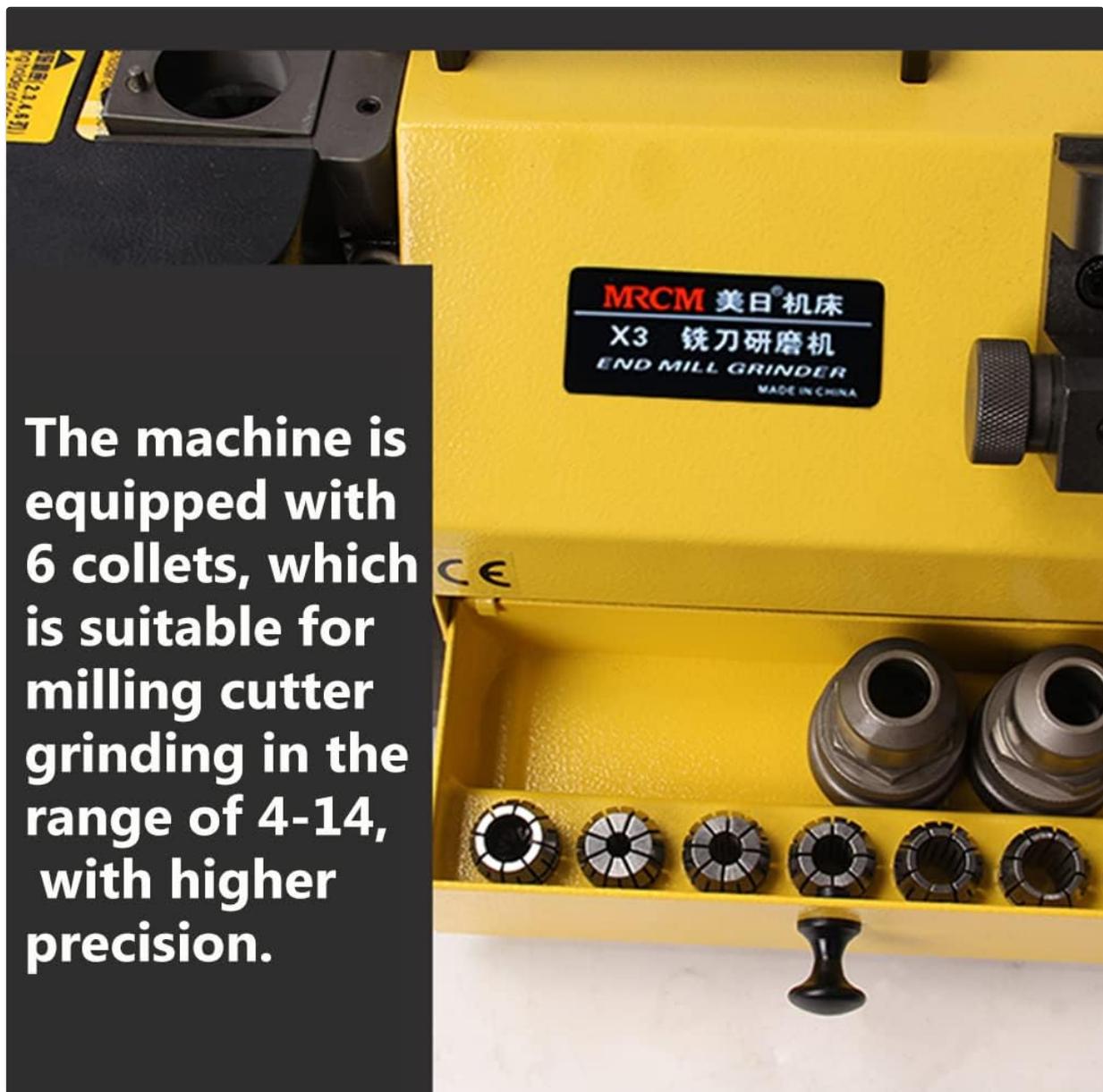


## The power supply interface has a fuse, using electronic control type strong DC motor

**Figure 2:** Power supply interface with fuse. This image highlights the power input port on the machine, showing the integrated fuse for electrical protection and indicating the use of an electronic control type strong DC motor.

### 4.3 Collet Installation

The machine is equipped with a set of collets suitable for end mills ranging from 4mm to 14mm, ensuring high precision grinding. Select the appropriate collet for the diameter of the end mill you intend to sharpen. Insert the collet into the collet holder on the grinding head.



**Figure 3:** Collets for end mill grinding. This image shows a selection of collets stored in a drawer, illustrating that the machine comes with 6 collets suitable for milling cutters from 4mm to 14mm, designed for high precision.

## 5. OPERATING INSTRUCTIONS

### 5.1 Selecting the Grinding Wheel

The MR-X3A supports different grinding wheels for various materials:

- **SDC Grinding Wheel:** Standard for Carbide material.
- **CBN Grinding Wheel:** Optional, suitable for High-Speed Steel (HSS) material.

Ensure the correct grinding wheel is installed for the material of your end mill. Wheels can be changed freely by following the wheel replacement procedure in the Maintenance section.



## Free change grinding wheel

Wheels can be changed freely. CBN wheels are suitable for high-speed steel and SDC wheels are suitable for tungsten steel.

**Figure 4:** Grinding wheel selection. This image shows the grinding wheel assembly, emphasizing that wheels can be changed freely, with CBN wheels for high-speed steel and SDC wheels for tungsten steel.

### 5.2 End Mill Insertion and Securing

1. Select the appropriate collet for your end mill diameter ( $\Phi 4\text{mm}$  to  $\Phi 20\text{mm}$ ).
2. Insert the end mill into the collet, ensuring it is seated correctly.
3. Place the collet with the end mill into the collet holder on the grinding head.
4. Tighten the collet holder to securely fasten the end mill.

### 5.3 Adjusting Grinding Volume and Angle

Use the grinding volume adjustment knob to set the desired amount of material to be removed. This knob allows for precise control, making the sharpening process more comfortable and effective, regardless of the tool's wear level. The machine is designed to provide accurate axial angles directly.

### 5.4 Grinding Process

Once the end mill is secured and adjustments are made:

1. Turn on the power switch.
2. Carefully bring the end mill into contact with the rotating grinding wheel.

3. Follow the specific grinding procedure for 2, 3, or 4 flute end mills as indicated by the machine's guides.
4. Apply gentle, consistent pressure. Avoid excessive force.
5. Grind each flute evenly to achieve a balanced and sharp edge.
6. Once sharpening is complete, turn off the power switch and carefully remove the end mill.

## 6. MAINTENANCE

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### 6.1 Cleaning

Regularly clean the machine to remove grinding dust and debris. Use a soft brush or compressed air. Ensure the machine is unplugged before cleaning.

### 6.2 Grinding Wheel Replacement

When a grinding wheel becomes worn or if you need to switch between SDC and CBN wheels:

1. Disconnect the machine from the power supply.
2. Follow the specific instructions in the machine's diagram for accessing and removing the grinding wheel.
3. Install the new grinding wheel, ensuring it is properly seated and secured.
4. Reconnect power and test the machine.

### 6.3 General Care

Store the machine in a dry, clean environment. Avoid exposing it to moisture or extreme temperatures. Periodically check all fasteners for tightness.

## 7. TROUBLESHOOTING

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- **Machine does not power on:** Check power cord connection, wall outlet, and the fuse in the power inlet.
- **End mill not sharpening evenly:** Ensure the end mill is securely clamped in the collet and the collet holder. Verify the grinding volume adjustment is set correctly.
- **Excessive vibration:** Check if the grinding wheel is properly installed and balanced. Ensure the machine is on a stable surface.
- **Poor sharpening quality:** Confirm the correct grinding wheel (SDC for Carbide, CBN for HSS) is being used. The grinding wheel may be worn and require replacement.

## 8. SPECIFICATIONS

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Specification	Detail
Model	MR-X3A
Applicable Diameters	Φ4mm, Φ5mm, Φ6mm, Φ8mm, Φ10mm, Φ12mm, Φ14mm, Φ16mm, Φ18mm, Φ20mm
Applicable Flutes	2, 3, 4 flutes

Voltage	220V (110V with transformer)
Power	0.16 kW
Weight	14 KG
Dimensions (L*W*H)	35cm * 25cm * 25cm
Grinding Wheel Type	SDC (Carbide), CBN (HSS)

## 9. WARRANTY INFORMATION

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The MRCM MR-X3A End Mill Sharpener comes with a 1-year warranty from the date of purchase. This warranty covers manufacturing defects and faulty workmanship under normal use. It does not cover damage resulting from misuse, neglect, unauthorized modifications, or normal wear and tear of consumables like grinding wheels.

## 10. SUPPORT

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For technical assistance, spare parts, or warranty claims, please contact your authorized MRCM dealer or the manufacturer's customer service. When contacting support, please have your product model (MR-X3A) and purchase date available.