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MRCM MR-20G

MRCM MR-20G Drill Bit Sharpener User Manual

Model: MR-20G | Brand: MRCM

1. INTRODUCTION AND OVERVIEW

The MRCM MR-20G Drill Bit Sharpener is a precision tool designed for efficiently sharpening standard twist drill bits. It is capable of handling drill bits with diameters ranging from 3mm to 20mm, allowing for precise adjustment of point angles from 90° to 135°. This manual provides essential information for the safe and effective use, setup, operation, and maintenance of your MR-20G sharpener.



Figure 1.1: The MRCM MR-20G Drill Bit Sharpener. This image shows the overall design of the sharpener, highlighting its compact form factor and key operational areas.

2. SAFETY INFORMATION

Always prioritize safety when operating any power tool. Read and understand all instructions before use. Failure to follow these instructions may result in electric shock, fire, and/or serious injury.

- **Work Area Safety:** Keep your work area clean and well-lit. Cluttered or dark areas invite accidents. Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust.
- **Electrical Safety:** Do not expose power tools to rain or wet conditions. Water entering a power tool will increase the risk of electric shock. Do not abuse the cord. Never use the cord for carrying, pulling, or unplugging the power tool. Keep cord away from heat, oil, sharp edges, or moving parts.
- **Personal Safety:** Always wear appropriate personal protective equipment (PPE), including safety glasses, hearing protection, and gloves. Dress properly. Do not wear loose clothing or jewelry. Keep your hair, clothing, and gloves away from moving parts.
- **Tool Use and Care:** Do not force the power tool. Use the correct power tool for your application. Disconnect the plug from the power source before making any adjustments, changing accessories, or storing power tools.
- **Maintenance:** Maintain power tools and accessories. Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use.

3. PRODUCT FEATURES

The MRCM MR-20G Drill Bit Sharpener offers several key features designed for efficient and precise drill bit maintenance:

- Capable of sharpening drill bits from 90° to 135° point angle, accommodating both standard and split point drills.
- Sharpens standard twist bits ranging from 3mm to 20mm in diameter.
- Allows for setting the trimming angle to adjust the amount of material removed from the center point of the drill bit, enabling the production of various drill bit geometries for different materials.
- Equipped with a CBN (Cubic Boron Nitride) grinding wheel as standard, suitable for High-Speed Steel (HSS) material. An SDC (Synthetic Diamond Composite) grinding wheel is optional for alloy tungsten steel material.
- Capable of sharpening the front rake, front tip angle, and clearance angle of drill bits for comprehensive maintenance.

4. COMPONENTS AND PARTS LIST

The MR-20G Drill Bit Sharpener comes with the following main components and accessories:

- MR-20G Drill Bit Sharpener Unit
- CBN Grinding Wheel (for HSS) - 1 piece (pre-installed or included)

- Eleven Collets: $\Phi 3$, $\Phi 4$, $\Phi 5$, $\Phi 6$, $\Phi 7$, $\Phi 8$, $\Phi 9$, $\Phi 10$, $\Phi 11$, $\Phi 12$, $\Phi 13$ (for securing various drill bit sizes)
- Power Cord

5. SETUP

Before operating the MR-20G, ensure it is properly set up in a stable and safe environment.

1. **Unpacking:** Carefully remove the sharpener and all accessories from its packaging. Inspect for any shipping damage.
2. **Placement:** Place the sharpener on a sturdy, level workbench or surface. Ensure there is adequate space around the unit for safe operation and ventilation.
3. **Power Connection:** Connect the power cord to the sharpener and then to a compatible AC220V power outlet. Ensure the power switch on the unit is in the 'OFF' position before plugging it in.
4. **Collet Installation:** Select the appropriate collet for the drill bit diameter you intend to sharpen. Insert the collet into the designated collet holder on the sharpener.
5. **Drill Fixture Positioning:** The drill fixture group needs to be correctly positioned for sharpening. Refer to Figure 5.1 for proper alignment.

DRILL FIXTURE GROUP POSITIONING



Figure 5.1: Drill Fixture Group Positioning. This image illustrates the area where the drill bit is secured and adjusted for sharpening, including the power switch and web diameter adjustment dial.

6. OPERATING INSTRUCTIONS

Follow these steps to sharpen your drill bits using the MR-20G sharpener:

1. **Prepare the Drill Bit:** Clean the drill bit to remove any debris or oil. Select the correct collet for the drill bit's diameter and insert the drill bit into the collet.
2. **Adjust Point Angle:** The MR-20G allows for point angles from 90° to 135°. Rotate the grinding seat dial to set the desired point angle for your drill bit. Refer to Figure 6.1 for the grinding seat.

3. **Insert Drill Bit Assembly:** Insert the collet with the drill bit into the sharpening port. Ensure it is seated firmly.
4. **Power On:** Turn on the sharpener using the power switch. The grinding wheel will begin to rotate.
5. **Sharpening Process:** Gently push and rotate the drill bit assembly according to the specific instructions for the sharpening port (e.g., point grinding, point splitting). Apply light, consistent pressure. Do not force the drill bit against the grinding wheel.
6. **Check Progress:** Periodically remove the drill bit to check the sharpening progress. Continue until the desired sharpness and angle are achieved.
7. **Power Off:** Once sharpening is complete, turn off the sharpener and wait for the grinding wheel to stop completely before removing the drill bit.

EASIER TO USE GRINDING SEAT



Figure 6.1: Easier to Use Grinding Seat. This image highlights the grinding seat and its angle adjustment dial, which allows users to precisely set the drill bit's point angle.

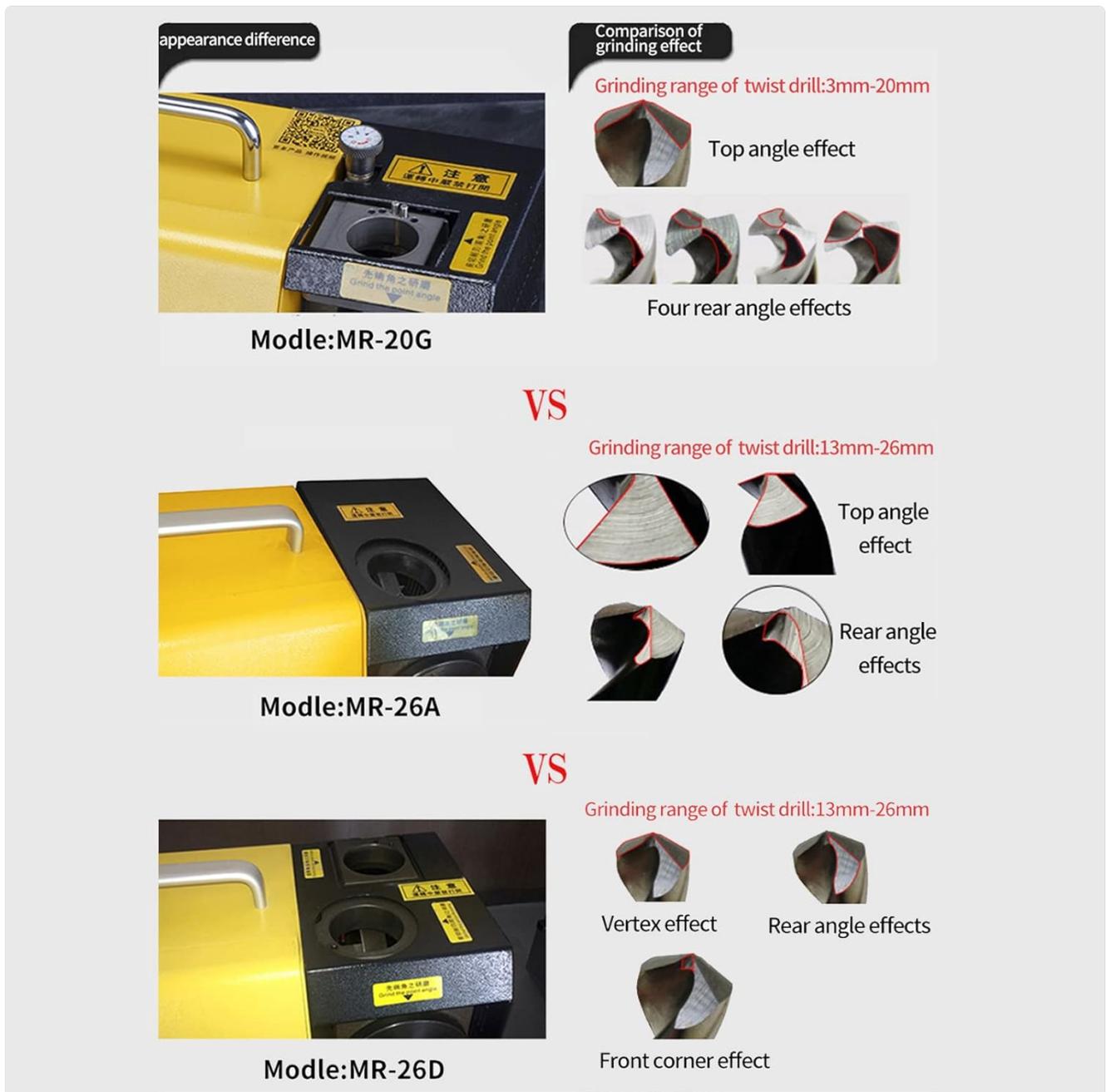


Figure 6.2: Comparison of Grinding Effect for MR-20G. This diagram specifically shows the top angle and four rear angle effects achievable with the MR-20G for drill bits within its 3mm-20mm grinding range.

7. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your MR-20G Drill Bit Sharpener.

- **Cleaning:** After each use, disconnect the power and use a brush or compressed air to remove grinding dust and debris from the sharpener, especially around the grinding wheel and collet areas.
- **Grinding Wheel Replacement:** The grinding wheel will wear down over time and needs to be replaced to maintain sharpening effectiveness.

7.1. Grinding Wheel Replacement Procedure

1. **Disconnect Power:** Ensure the sharpener is unplugged from the power source.

2. **Access Wheel:** Locate the grinding wheel compartment, typically secured by a cover or latch. Open or remove the cover to expose the grinding wheel.
3. **Remove Old Wheel:** Carefully unfasten the retaining mechanism (e.g., screw, nut) that holds the grinding wheel in place. Remove the worn grinding wheel.
4. **Install New Wheel:** Place the new CBN (or SDC, if applicable) grinding wheel onto the spindle, ensuring it is correctly oriented and seated. Secure it with the retaining mechanism.
5. **Close Compartment:** Replace the cover or close the latch securely.

FREELY REPLACEABLE GRINDING WHEEL



Figure 7.1: Freely Replaceable Grinding Wheel. This image demonstrates the accessibility of the grinding wheel for easy replacement, a key maintenance feature.

8. TROUBLESHOOTING

This section provides solutions to common issues you might encounter with your MR-20G Drill Bit Sharpener.

Problem	Possible Cause	Solution
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Problem	Possible Cause	Solution
Sharpener does not turn on	No power supply Power switch off Damaged power cord	Check power outlet and connection Ensure power switch is ON Inspect cord for damage; replace if necessary
Drill bit not sharpening effectively	Worn grinding wheel Incorrect angle setting Improper drill bit insertion	Replace grinding wheel (refer to Section 7.1) Adjust point angle correctly (refer to Section 6) Ensure drill bit is securely seated in the collet and sharpening port
Excessive vibration or noise	Loose components Damaged grinding wheel Unstable surface	Check all fasteners and tighten if loose Inspect grinding wheel for cracks or chips; replace if damaged Ensure sharpener is on a stable, level surface

9. SPECIFICATIONS

Detailed technical specifications for the MRCM MR-20G Drill Bit Sharpener:

Specification	Detail
Model	MR-20G
Grinding Range	Φ3 - Φ20 mm
Point Angle	90° - 135°
Power Input	AC220V
Motor Power	120W
Speed	4400 rpm
Dimensions (L×W×H)	32 × 18 × 19 cm
Weight	10 kg
Standard Grinding Wheel	CBN (for HSS)
Included Collets	Φ3, Φ4, Φ5, Φ6, Φ7, Φ8, Φ9, Φ10, Φ11, Φ12, Φ13
Manufacturer	MRCM

10. WARRANTY AND SUPPORT

For warranty information, technical support, or service inquiries regarding your MRCM MR-20G Drill Bit Sharpener, please contact the manufacturer or your authorized dealer. Keep your purchase receipt as proof of purchase for any warranty claims.

For further assistance, refer to the contact information provided with your product packaging or visit the official MRCM website.