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VEVOR MR-20G

VEVOR Drill Bits Sharpener MR-20G User Manual

Model: MR-20G

1. INTRODUCTION

This manual provides instructions for the safe and efficient operation of the VEVOR Drill Bits Sharpener, model MR-20G. This machine is designed for precision sharpening of drill bits ranging from 3mm to 20mm in diameter, allowing for adjustable point angles and lip relief angles to optimize drilling performance.



Image 1.1: Overview of the VEVOR Drill Bits Sharpener MR-20G, showcasing the main unit, a set of collets, two grinding wheels (CBN and SDC), and hex wrenches.

2. SAFETY INSTRUCTIONS

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

- Read and understand all instructions before operating the sharpener.
- Wear appropriate personal protective equipment (PPE), including safety glasses and gloves.
- Ensure the work area is clean, well-lit, and free from obstructions.
- Keep children and unauthorized personnel away from the operating machine.
- Do not operate the machine in damp or wet conditions.
- Ensure the power supply matches the machine's requirements (120W, AC).
- Never leave the machine unattended while it is running.
- Disconnect power before performing any maintenance, adjustments, or changing accessories.
- Do not force the drill bit into the grinding wheel; allow the machine to work at its intended speed.
- Inspect the grinding wheels for damage before each use. Replace damaged wheels immediately.

- Securely fasten all collets and chucks before operation.
- Avoid touching moving parts during operation.

3. PACKAGE CONTENTS

Upon unpacking, verify that all items listed below are present and undamaged:

- 1 x VEVOR Drill Bits Sharpener (MR-20G)
- 18 x Collets (sizes: 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20mm)
- 1 x CBN Grinding Wheel (pre-installed)
- 1 x SDC Grinding Wheel
- 1 x M4 Hex Wrench
- 1 x M2.5 Hex Wrench
- 1 x Collet Chuck (3-13mm)
- 1 x Collet Chuck (14-20mm)



4. PRODUCT DIAGRAM AND COMPONENTS

Familiarize yourself with the various parts of the drill bit sharpener:



Image 4.1: Detailed diagram of the VEVOR Drill Bits Sharpener, highlighting key components such as the Motor Switch, Collet Chuck, Handle, Center Adjustment, Pin, Lip Relief Angle Shelf, Fan Blade, Point Angle Shelf, Point Angle Adjustment, Alignment Base, Adjustment Scale, and Collet storage.

1. **Motor Switch:** Controls power to the motor.
2. **Collet Chuck:** Holds the collet and drill bit during sharpening.
3. **Handle:** For portability and carrying the unit.
4. **Center Adjustment:** Used to center the drill bit for precise grinding.
5. **Pin:** Secures the collet chuck in position for lip relief angle grinding.
6. **Lip Relief Angle Shelf:** Area for adjusting the lip relief angle.
7. **Fan Blade:** Internal cooling component.

8. **Point Angle Shelf:** Area for adjusting the drill bit point angle.
 9. **Point Angle Adjustment:** Dial for setting the desired point angle (95° - 135°).
 10. **Alignment Base:** Used to align the drill bit correctly before grinding.
 11. **Adjustment Scale:** Visual indicator for various settings.
 12. **Collet:** Holds the drill bit securely within the collet chuck.
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5. SETUP

1. **Placement:** Place the sharpener on a stable, level, and clean workbench. Ensure adequate space around the machine for safe operation.
 2. **Power Connection:** Connect the power cord to a suitable AC power outlet. Verify that the voltage matches the machine's requirements.
 3. **Grinding Wheel Installation:** The CBN grinding wheel is pre-installed. If you need to use the SDC wheel or replace a worn wheel, refer to Section 6.3 for instructions.
 4. **Collet Selection:** Select the appropriate collet for the diameter of the drill bit you intend to sharpen. The sharpener includes 18 collets for drill bits from 3mm to 20mm.
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6. OPERATING INSTRUCTIONS

6.1. Preparing the Drill Bit for Sharpening

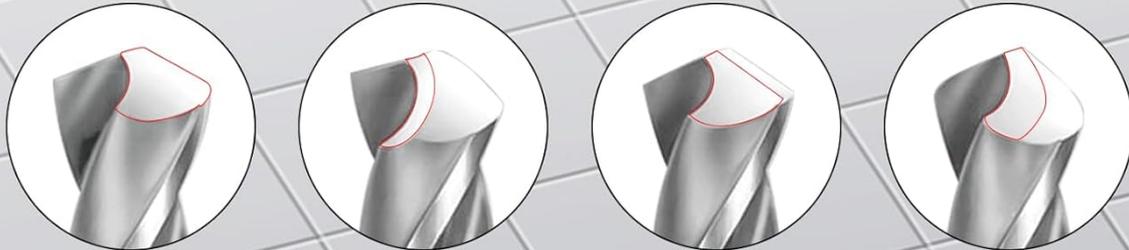
1. Select the correct collet for your drill bit diameter.
2. Insert the drill bit into the selected collet.
3. Insert the collet with the drill bit into the appropriate collet chuck (3-13mm or 14-20mm).
4. Place the collet chuck assembly into the alignment base (Component 10 in Image 4.1).
5. Adjust the drill bit's protrusion from the collet chuck using the center adjustment (Component 4) and the adjustment scale (Component 11) to ensure proper alignment for sharpening. The drill bit should be securely clamped.

6.2. Adjusting Point Angle and Lip Relief Angle

The sharpener allows for precise adjustment of both the point angle and the lip relief angle to suit different drilling applications and materials.

95° - 135° ADJUSTABLE POINT ANGLE

DIY optimal angle for more precise grinding



4-Type of Adjustable Lip Relief Angle



Image 6.1: Illustration of the adjustable point angle range (95° to 135°) and four distinct types of lip relief angles that can be achieved with the sharpener.

- **Point Angle Adjustment:** Use the Point Angle Adjustment dial (Component 9) on the Point Angle Shelf (Component 8) to set the desired angle between 95° and 135°. A common angle for general purpose drilling is 118°.
- **Lip Relief Angle Adjustment:** The sharpener supports grinding 4 types of lip relief angles. This is typically adjusted by rotating the collet chuck assembly within the Lip Relief Angle Shelf (Component 6) and using the pin (Component 5) to lock it into specific positions. Refer to the markings on the machine for precise settings.

6.3. Grinding Wheel Selection and Replacement

The sharpener comes with two types of grinding wheels for different materials:

- **CBN Grinding Wheel:** Suitable for sharpening high-speed steel (HSS) drill bits.
- **SDC Grinding Wheel:** Used for grinding alloy tungsten steel materials.

WIDE COMPATIBILITY FOR DIFFERENT MATERIALS

CBN & SDC grinding wheels for easy replacement



CBN Grinding Wheel
Handle High-Speed
Steel Material



SDC Grinding Wheel
Grind Alloy Tungsten
Steel Material



Image 6.2: A close-up view illustrating the CBN grinding wheel for high-speed steel and the SDC grinding wheel for alloy tungsten steel, highlighting their material compatibility.

To replace a grinding wheel:

1. Disconnect the sharpener from the power supply.
2. Locate the grinding wheel compartment.
3. Use the provided hex wrenches (M4 and M2.5) to loosen the retaining screws or nuts holding the grinding wheel in place.
4. Carefully remove the old wheel and install the new one, ensuring it is seated correctly.
5. Tighten the retaining screws/nuts securely. Do not overtighten.

6.4. Sharpening Process

1. Ensure the drill bit is properly secured in the collet and collet chuck, and the desired point and lip relief angles are set.
2. Turn on the Motor Switch (Component 1). The grinding wheel will begin to rotate at 4500 RPM.
3. Carefully insert the collet chuck assembly with the drill bit into the appropriate grinding port (Point Grinding or Point Splitting, as indicated on the machine).
4. Gently rotate the collet chuck assembly as instructed by the machine's markings to grind each flute of the drill bit

evenly. Apply light, consistent pressure.

5. Periodically remove the drill bit to inspect the progress. Continue grinding until the desired sharpness and angle are achieved.
6. Once sharpening is complete, turn off the Motor Switch and allow the grinding wheel to stop completely before removing the drill bit.
7. Always ensure the machine is off and unplugged before handling the drill bit or making further adjustments.



Image 6.3: An internal view of the VEVOR Drill Bits Sharpener, highlighting its 4500 RPM high-power DC motor, which provides strong horsepower and torque for efficient sharpening while maintaining low noise levels.

7. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your drill bits sharpener.

- **Cleaning:** After each use, disconnect the power and use a soft brush or compressed air to remove grinding dust and debris from the machine, especially around the grinding wheel and collet chuck areas.
- **Grinding Wheel Inspection:** Regularly inspect the grinding wheels for wear, cracks, or damage. Replace worn or damaged wheels promptly to maintain sharpening precision and safety.

- **Collet and Chuck Care:** Keep collets and collet chucks clean and free of debris. Store them properly in the integrated storage to prevent loss or damage.
- **Storage:** Store the sharpener in a dry, clean environment, away from direct sunlight and extreme temperatures.

8. TROUBLESHOOTING

Refer to this section for common issues and their solutions.

Problem	Possible Cause	Solution
Machine does not power on.	No power supply; loose power cord; faulty switch.	Check power connection; ensure switch is ON; test outlet; contact support if switch is faulty.
Drill bit not sharpening effectively.	Worn grinding wheel; incorrect angle setting; improper drill bit alignment.	Replace grinding wheel; re-adjust point and lip relief angles; re-align drill bit in collet chuck.
Excessive vibration or noise.	Loose components; damaged grinding wheel; unstable placement.	Check all fasteners; inspect and replace grinding wheel if damaged; ensure machine is on a stable surface.
Drill bit gets stuck or overheats.	Excessive pressure during grinding; incorrect grinding technique.	Apply lighter, consistent pressure; ensure proper rotation of the collet chuck during grinding.

9. SPECIFICATIONS

Detailed technical specifications for the VEVOR Drill Bits Sharpener MR-20G:

- **Item Model Number:** MR-20G
- **Rated Power:** 120W
- **Running Speed:** 4500 RPM
- **Applicable Drill Bit Diameter:** $\phi 3$ - $\phi 20$ mm
- **Adjustable Point Angle:** 95° - 135°
- **Item Material:** 45# Steel
- **Net Weight:** 20.1 lbs / 9.1 kg
- **Product Dimensions:** 11.4" x 5.7" x 6.3" / 290 x 145 x 160 mm
- **Power Source:** AC

VEVOR[®]
TOUGH TOOLS. HALF PRICE

5.7" / 145 mm

6.3" / 160 mm

11.4" / 290 mm

Product Specifications

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Rated Power: 120W

Item Material: 45# Steel

Running Speed: 4500 RPM

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Image 9.1: Visual representation of the VEVOR Drill Bits Sharpener MR-20G with its key product specifications and dimensions overlaid for quick reference.

10. WARRANTY AND SUPPORT

For warranty information or technical support, please refer to the documentation provided with your purchase or visit the official VEVOR website. Ensure you have your model number (MR-20G) and purchase details available when contacting support.

You can visit the VEVOR Store for more information: [VEVOR Official Store](#)