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AJDFVHJF GDZ-80-2.2B Water Cooled Spindle Motor User Manual

Model: GDZ-80-2.2B

1. INTRODUCTION

This manual provides essential information for the safe and efficient operation of your AJDFVHJF GDZ-80-2.2B Water Cooled Spindle Motor. Please read these instructions carefully before installation, operation, or maintenance to ensure proper function and longevity of the product. This spindle motor is designed for high-precision applications, offering stable performance and smooth operation.

2. SAFETY INFORMATION

Always observe the following safety precautions to prevent injury or damage to the equipment:

- Ensure all electrical connections are made by a qualified electrician and comply with local codes.
- Disconnect power before performing any installation, maintenance, or troubleshooting.
- Wear appropriate personal protective equipment (PPE), including eye protection and gloves.
- Ensure the water cooling system is properly installed and functioning before operating the spindle.
- Do not operate the spindle motor if any part is damaged or malfunctioning.
- Keep hands and loose clothing away from rotating parts during operation.
- Ensure the spindle is securely mounted to prevent vibration or detachment.

3. PRODUCT OVERVIEW

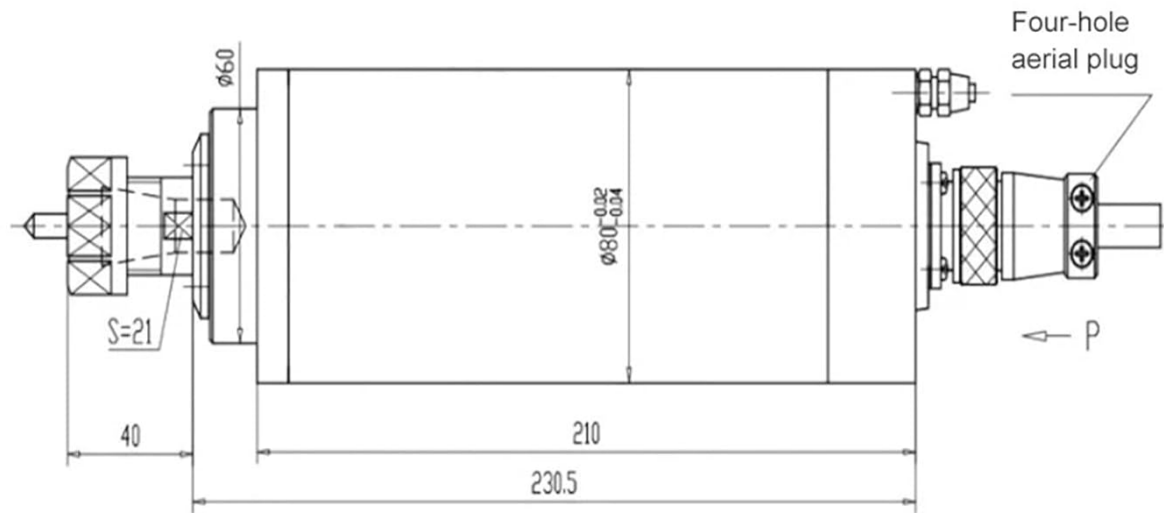
The GDZ-80-2.2B is a high-performance water-cooled spindle motor, featuring a 2.2KW power output and an ER20 collet system. It is designed for applications requiring high rotational speeds and precision, such as CNC engraving and milling.



Figure 3.1: The AJDFVHJF GDZ-80-2.2B Water Cooled Spindle Motor, showing the main body and the detachable 4-pin aviation connector for power and control signals.

4. SPECIFICATIONS

Detailed technical specifications for the GDZ-80-2.2B spindle motor are provided below. Note that specific voltage variants (e.g., 110V or 220V) may exist for the same model.



Woodworking water-cooled spindle motor			
Dimensions	80x213	Rotation speed	24000rpm
Rated power	2.2KW	Voltage	220V
Current	8A	Frequency	400Hz
Shaft end	ER20	Lubrication	Grease

Figure 4.1: Technical drawing illustrating the dimensions of the spindle motor and a table detailing its key specifications.

Table 4.1: GDZ-80-2.2B Spindle Motor Key Specifications

Parameter	Value	Parameter	Value
Model	GDZ-80-2.2B	Rated Power	2.2 KW
Dimensions (Diameter x Length)	80mm x 213mm	Rotation Speed	0-24,000 RPM
Voltage	110V (or 220V depending on variant)	Frequency	400 Hz
Current	8A (for 220V)	Shaft End	ER20
Runout	< 0.1 mm	Lubrication	Grease
Item Weight	Approx. 2 kg (4.41 lbs)	Manufacturer	AJDFVHJF

5. SETUP AND INSTALLATION

Proper installation is crucial for the performance and safety of the spindle motor.

5.1 Mechanical Installation

1. **Mounting:** Securely mount the spindle motor to your machine's Z-axis or gantry using an appropriate spindle clamp. Ensure the mounting is rigid and free from vibration.
2. **Collet and Nut:** Install the ER20 collet and collet nut onto the spindle shaft. Ensure the collet is clean and free of debris.
3. **Tool Insertion:** Insert the cutting tool into the collet, ensuring it is seated correctly and tightened securely with the collet nut wrench.

5.2 Electrical Connection

Connect the spindle motor to a compatible Variable Frequency Drive (VFD) according to the VFD's manual and the spindle's wiring diagram. The 4-pin aviation plug typically connects to the VFD's output terminals (U, V, W, Ground).

- Ensure the VFD is rated for the spindle's power (2.2KW) and voltage (110V or 220V).
- Verify correct phase sequence (U, V, W) to ensure proper rotation direction.
- Connect the ground wire securely.

5.3 Cooling System Setup

The GDZ-80-2.2B is a water-cooled spindle. A dedicated cooling system is required for operation.

1. **Connect Hoses:** Attach the inlet and outlet water hoses to the designated ports on the spindle motor. Ensure connections are tight to prevent leaks.
2. **Coolant Pump:** Connect the hoses to a suitable coolant pump and reservoir system.
3. **Coolant:** Fill the reservoir with clean, distilled water or a recommended coolant solution.
4. **Test Flow:** Before operating the spindle, activate the coolant pump to ensure proper water flow through the spindle and no leaks.

6. OPERATING INSTRUCTIONS

Follow these steps for safe and effective operation of your spindle motor:

1. **Pre-Operation Check:** Verify all connections (mechanical, electrical, cooling) are secure and correct. Ensure the cutting tool is properly installed.
2. **Activate Cooling:** Turn on the water cooling system and confirm coolant flow.
3. **Power On VFD:** Power on your Variable Frequency Drive (VFD).
4. **Set Parameters:** Configure the VFD parameters according to the spindle specifications (e.g., max frequency 400Hz, rated voltage, acceleration/deceleration times).
5. **Start Spindle:** Initiate spindle rotation at a low RPM first, then gradually increase to the desired operating speed.
6. **Monitor:** During operation, monitor the spindle for unusual noises, vibrations, or excessive heat. Ensure continuous coolant flow.
7. **Shut Down:** To stop, gradually reduce the spindle speed to zero, then turn off the VFD and finally the cooling system.

7. MAINTENANCE

Regular maintenance ensures optimal performance and extends the lifespan of your spindle motor.

- **Daily:** Check coolant levels and ensure proper flow. Inspect the spindle for any visible damage or loose connections.
- **Weekly:** Clean the exterior of the spindle and the collet area to remove dust and debris. Check the tightness of the collet nut.
- **Monthly:** Inspect the cooling hoses for kinks or wear. Clean the coolant reservoir and filter if applicable. Replace coolant if it appears contaminated.
- **Bearing Lubrication:** This spindle uses grease lubrication. It is typically sealed and does not require user-applied lubrication. Refer to manufacturer guidelines for bearing replacement intervals if applicable.
- **Storage:** If storing the spindle for an extended period, ensure it is clean, dry, and protected from dust and humidity.

8. TROUBLESHOOTING

This section addresses common issues you might encounter with your spindle motor.

Problem	Possible Cause	Solution
Spindle does not start	No power to VFD; Incorrect VFD parameters; Loose electrical connections; VFD fault.	Check power supply; Verify VFD settings (frequency, voltage); Inspect wiring; Check VFD error codes.
Excessive vibration or noise	Unbalanced tool; Loose mounting; Damaged bearings; Incorrect VFD parameters.	Balance tool or replace; Tighten mounting bolts; Contact support for bearing issues; Review VFD settings.
Spindle overheating	Insufficient coolant flow; Clogged cooling lines; Faulty coolant pump; Overload.	Check coolant level and pump operation; Clear any blockages in hoses; Reduce load or operating time.
Poor cutting performance	Dull tool; Incorrect tool runout; Incorrect spindle speed or feed rate.	Replace or sharpen tool; Check tool seating and collet; Adjust VFD speed and machine feed rates.

9. WARRANTY AND SUPPORT

For warranty information, technical support, or service inquiries, please contact your original point of purchase or the manufacturer, AJDFVHJF. Keep your purchase receipt and product model number (GDZ-80-2.2B) readily available when contacting support.