BORDSTRACT BORDSTRACTrewtcigozx

BORDSTRACT 300W 52mm DC 48V CNC Brushless Spindle Motor ER11 Air Cooled Instruction Manual

1. Introduction

This manual provides essential instructions for the safe and efficient use of your BORDSTRACT 300W 52mm DC 48V CNC Brushless Spindle Motor with ER11 Air Cooled system. Please read this manual thoroughly before installation, operation, or maintenance to ensure proper function and to prevent damage or injury. Keep this manual for future reference.

2. Product Overview

The BORDSTRACT Spindle Motor is designed for various applications including solid wood carving, PCB engraving, and drilling tasks. It features a brushless design for enhanced performance and longevity.

2.1 Key Features

- **Excellent Performance:** Utilizes dynamic balance technology to minimize noise, enhance stability, and improve efficiency and longevity.
- **High Precision:** Offers exceptional accuracy with a radial runout of 0.01-0.04 mm, ensuring stable operation.
- **Extended Working Life:** Equipped with durable steel bearings and all-copper rotor extension coils, with fast heat dissipation for enhanced durability.
- **High-Speed Operation:** Operates at speeds up to 12000 RPM, boosting work efficiency.
- **Wide Applications:** Suitable for solid wood carving, PCB engraving, DIY engraving machines, wood engraving machines, and advertising engraving machine accessories.

2.2 Components

Figure 1: The BORDSTRACT 300W 52mm DC 48V CNC Brushless Spindle Motor, showing the main body, ER11 collet, and power wires (red and black).

Figure 2: Dimensions of the spindle motor, indicating a total length of 17.5 cm (6.8 inches) and a diameter of 5.2 cm (2 inches).

Figure 3: Detailed view of the spindle motor components, including the rear cooling fan, power wires, and the ER11 collet for tool holding.

Figure 4: Comparison of new (silver body) and old (black body) spindle motor models. Functionality remains consistent across both types.

3. Specifications

Attribute	Value
Brand	BORDSTRACT
Model Number	BORDSTRACTrewtcigozx
Power	300 Watts
Voltage	48 Volts DC
Speed	Up to 12000 RPM
Cooling Method	Air Cooled
Collet Type	ER11
Radial Runout	0.01-0.04 mm
Material	Metal
Product Dimensions	7.87 x 3.94 x 3.15 inches (1.85 Pounds)

4. Safety Information

WARNING: Failure to follow these safety instructions may result in electric shock, fire, or serious injury.

- Always disconnect power before installing, servicing, or cleaning the spindle motor.
- Ensure proper grounding of all electrical components.
- Wear appropriate personal protective equipment (PPE), including eye protection and gloves, when

operating or working near the spindle motor.

- Keep hands, hair, and loose clothing away from rotating parts.
- Do not operate the motor in wet or damp conditions.
- Ensure the motor is securely mounted before operation.
- Do not exceed the specified voltage or current ratings.
- Avoid sudden impacts or dropping the motor.
- If any unusual noise, vibration, or smell occurs, immediately shut down the system and investigate the cause.

5. Setup

1. **Unpacking:** Carefully remove the spindle motor from its packaging. Inspect for any signs of damage during transit.
2. **Mounting:** Securely mount the spindle motor to your CNC machine or engraving system using an appropriate mounting bracket (not included). Ensure the motor is firmly fixed to prevent vibration during operation.
3. **Electrical Connection:**
    - Connect the red wire from the spindle motor to the positive (+) terminal of your DC 48V power supply.
    - Connect the black wire from the spindle motor to the negative (-) terminal of your DC 48V power supply.
    - Ensure all connections are secure and insulated to prevent short circuits.
    - Verify that your power supply is capable of providing the required 48V DC and sufficient current for the 300W motor.
4. **Collet and Tool Installation:**
    - Insert the desired ER11 collet into the spindle shaft.
    - Insert the cutting tool (e.g., engraving bit, drill bit) into the collet.
    - Tighten the ER11 collet nut firmly using the appropriate wrench to secure the tool. Ensure the tool is properly seated and centered.
5. **Initial Check:** Before applying full power, perform a visual inspection of all connections and mounting points.

6. Operating Instructions

1. **Power On:** Once all connections are verified and the tool is secured, apply power to the spindle motor.
2. **Speed Control:** If your power supply or CNC controller includes speed control (PWM or voltage regulation), adjust the motor speed according to your application's requirements. The motor can operate up to 12000 RPM.
3. **Monitoring:** During operation, monitor the motor for any unusual noises, excessive heat, or vibrations. If any anomalies are detected, immediately power off the system.
4. **Workpiece Engagement:** Carefully bring the rotating tool into contact with the workpiece. Apply appropriate feed rates and depth of cut for the material being processed to avoid overloading the motor.
5. **Cooling:** The motor is air-cooled. Ensure that the rear fan is not obstructed and has adequate airflow for efficient heat dissipation.

6. **Power Off:** After completing your task, turn off the power supply to the spindle motor. Allow the spindle to come to a complete stop before performing any adjustments or tool changes.

7. Maintenance

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

- **Cleaning:** Periodically clean the exterior of the motor, especially the cooling fan area, to prevent dust and debris buildup that can impede airflow. Use a soft, dry cloth or compressed air. Ensure power is disconnected before cleaning.
- **Collet Inspection:** Regularly inspect the ER11 collet and collet nut for wear or damage. Replace if necessary to maintain tool holding accuracy.
- **Bearing Check:** Listen for any unusual bearing noises. While the bearings are designed for long life, excessive noise may indicate wear and require professional servicing.
- **Connection Check:** Periodically check all electrical connections for tightness and signs of corrosion.
- **Storage:** When not in use for extended periods, store the motor in a clean, dry environment, protected from dust and moisture.

8. Troubleshooting

Problem	Possible Cause	Solution
Motor does not start	No power; incorrect wiring; faulty power supply.	Check power connections; verify power supply output; ensure correct polarity.
Motor runs slowly or with low power	Insufficient voltage/current from power supply; motor overload; worn bearings.	Verify power supply specifications; reduce load; inspect bearings.
Excessive noise or vibration	Loose mounting; unbalanced tool; worn bearings; foreign object.	Tighten mounting bolts; ensure tool is balanced and properly seated; inspect for debris; check bearings.
Motor overheats	Obstructed airflow to cooling fan; continuous overload; high ambient temperature.	Clear fan obstructions; reduce load or operating time; ensure adequate ventilation.
Tool slips in collet	Collet nut not tight enough; worn collet or nut; incorrect collet size.	Tighten collet nut firmly; replace worn components; ensure correct ER11 collet for tool shank diameter.

If the problem persists after attempting these solutions, contact BORDSTRACT customer support or a qualified technician.

9. Warranty and Support

For warranty information and technical support, please refer to the documentation provided with your purchase or visit the official BORDSTRACT website. You can also contact BORDSTRACT customer service through the retailer where the product was purchased.
Manufacturer: BORDSTRACT

Model Number: BORDSTRACTrewtcigozx
ASIN: B09NB7PCXJ
For further assistance, please visit the BORDSTRACT Store on Amazon.