

Bolisila SHD05

Bolisila SHD05 Mini Harmonic Reducer User Manual

Model: SHD05

1. INTRODUCTION

This manual provides comprehensive instructions for the installation, operation, and maintenance of the Bolisila SHD05 Mini Harmonic Reducer. Designed for precision applications such as robot arms and grippers, this 50:1 strain wave gear reducer offers high torque and efficient performance in a compact form factor. Please read this manual thoroughly before using the product to ensure safe and optimal operation.

2. PRODUCT OVERVIEW

The Bolisila SHD05 is a mini hollow Nema 8 BLDC motor speed reducer gearbox featuring a 50:1 strain wave gear harmonic reduction system. Its compact 28mm design is ideal for applications requiring high precision and torque density.

Key Features:

- **Energy-efficient:** Low power consumption for high operational efficiency.
- **Powerful performance:** Delivers high torque with fast response capabilities.
- **Quiet operation:** Engineered for low noise and smooth, silent performance.
- **Easy installation:** Features a simple design for hassle-free setup and maintenance.
- **Wide applications:** Compatible with various equipment and scenarios, particularly in robotics.



Figure 2.1: Bolisila SHD05 Mini Harmonic Reducer, showing its compact design.



Figure 2.2: Rear view of the SHD05, illustrating mounting points and hollow shaft design.

3. SETUP AND INSTALLATION

Proper installation is crucial for the optimal performance and longevity of the SHD05 harmonic reducer. Follow these general guidelines:

1. **Preparation:** Ensure the mounting surface is clean, flat, and free from debris. Verify that all necessary tools and fasteners are available.
2. **Mounting:** Securely attach the reducer to the motor or application frame using appropriate screws and torque specifications. Refer to the technical data for precise dimensions and mounting hole patterns.
3. **Alignment:** Ensure proper alignment between the motor shaft and the reducer input, and the reducer output and the driven component. Misalignment can lead to increased wear and reduced efficiency.
4. **Electrical Connection:** If connecting to a BLDC motor, ensure all electrical connections are made according to the motor's specifications and safety standards.
5. **Initial Check:** Before full operation, perform a manual rotation check to ensure smooth movement and no binding.

32mm

10.5mm

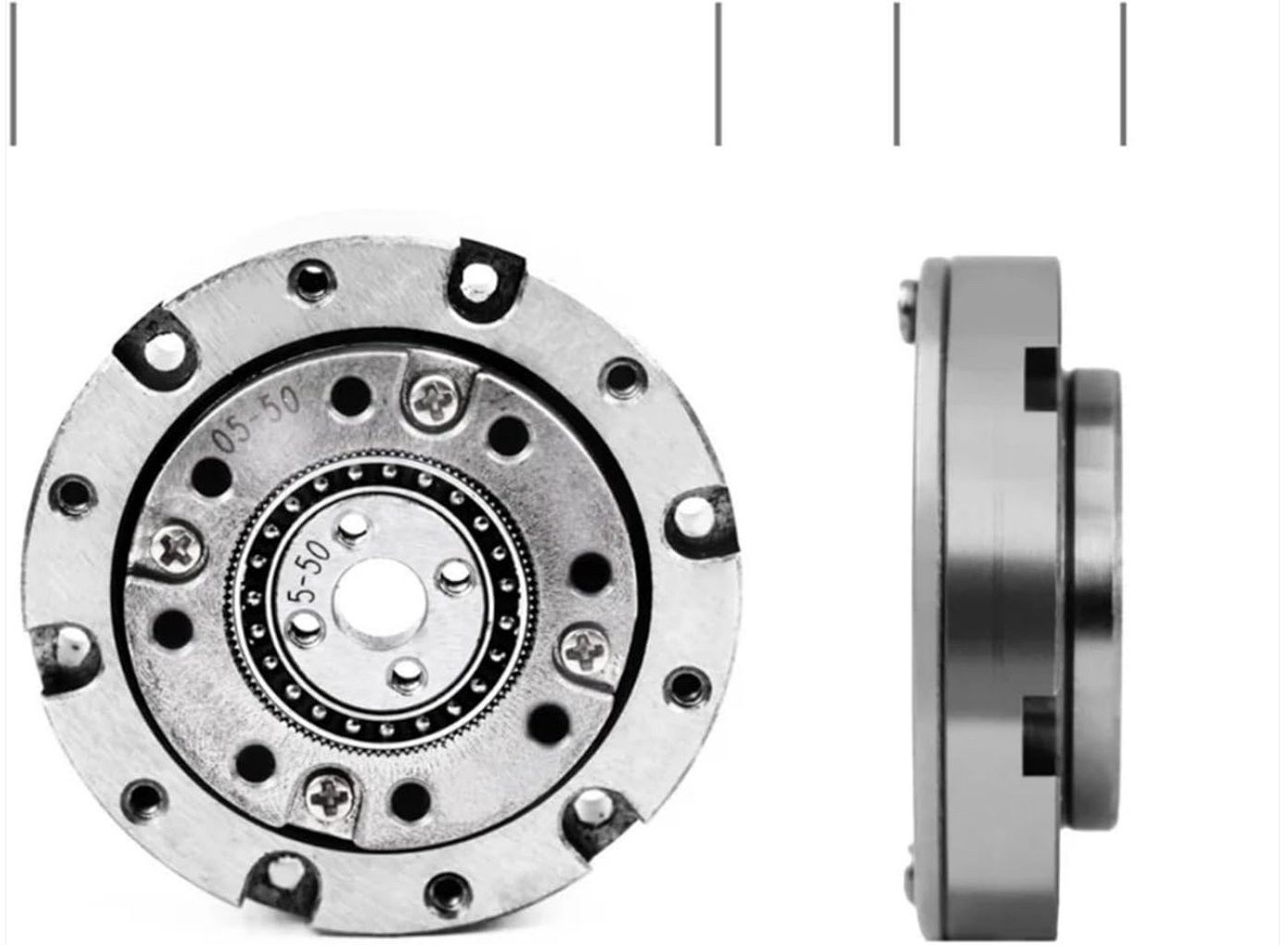


Figure 3.1: SHD05 dimensions, indicating a diameter of 32mm and thickness of 10.5mm.

4. OPERATING INSTRUCTIONS

The Bolisila SHD05 harmonic reducer is designed for precise speed reduction and torque transmission. Adhere to the following operational guidelines:

- **Rated Load:** Operate the reducer within its specified output torque limits (0.8 N.m nominal). Exceeding these limits can lead to premature wear or damage.
- **Speed Range:** Ensure the input speed from the motor is within the reducer's maximum allowable input speed.
- **Temperature:** Monitor the operating temperature. Prolonged operation at excessively high temperatures can degrade performance and lifespan.
- **Vibration and Noise:** While designed for quiet operation, unusual vibration or noise during operation may indicate an issue. Discontinue use and inspect the unit if such conditions occur.
- **Environment:** Use the reducer in a clean, dry environment, free from excessive dust, moisture, or corrosive substances.

5. MAINTENANCE

Regular maintenance ensures the longevity and reliable performance of your SHD05 harmonic reducer. While the unit is largely maintenance-free, periodic checks are recommended:

- **Inspection:** Periodically inspect the reducer for any signs of wear, damage, or loose fasteners. Check for any unusual grease leakage.
- **Cleaning:** Keep the exterior of the reducer clean. Avoid using harsh chemicals that could damage the housing or seals.
- **Lubrication:** The SHD05 is pre-lubricated for its expected lifespan. Do not attempt to disassemble or re-lubricate the unit unless specifically instructed by the manufacturer. Unauthorized disassembly will void any potential warranty.
- **Storage:** If storing the unit for an extended period, keep it in a dry, temperature-controlled environment.

6. TROUBLESHOOTING

This section provides solutions to common issues you might encounter with your SHD05 harmonic reducer.

Problem	Possible Cause	Solution
Unusual Noise/Vibration	Misalignment, loose mounting, worn bearings, excessive load.	Check mounting bolts for tightness. Verify alignment of input/output shafts. Reduce load if exceeding specifications. Contact support if issue persists.
Reduced Performance/Stalling	Overload, motor issue, internal damage.	Ensure operating within rated torque. Check motor functionality. If internal damage is suspected, contact support.
Overheating	Excessive load, high ambient temperature, insufficient ventilation.	Reduce load. Ensure adequate airflow around the unit. Check ambient temperature.

If you encounter problems not listed here or if the suggested solutions do not resolve the issue, please contact Bolisila customer support.

7. SPECIFICATIONS

Detailed technical specifications for the Bolisila SHD05 Mini Harmonic Reducer:

- **Model Number:** SHD05
- **Gearing Arrangement:** Harmonic
- **Output Torque:** 0.8 N.m (Nominal)
- **Gear Ratio:** 50:1
- **Item Weight:** 1.1 pounds (approx. 0.5 kg)
- **Package Dimensions:** 1.18 x 0.79 x 0.39 inches (approx. 30 x 20 x 10 mm)
- **Manufacturer:** Bolisila

Technical Data Sheet:

SHD-05

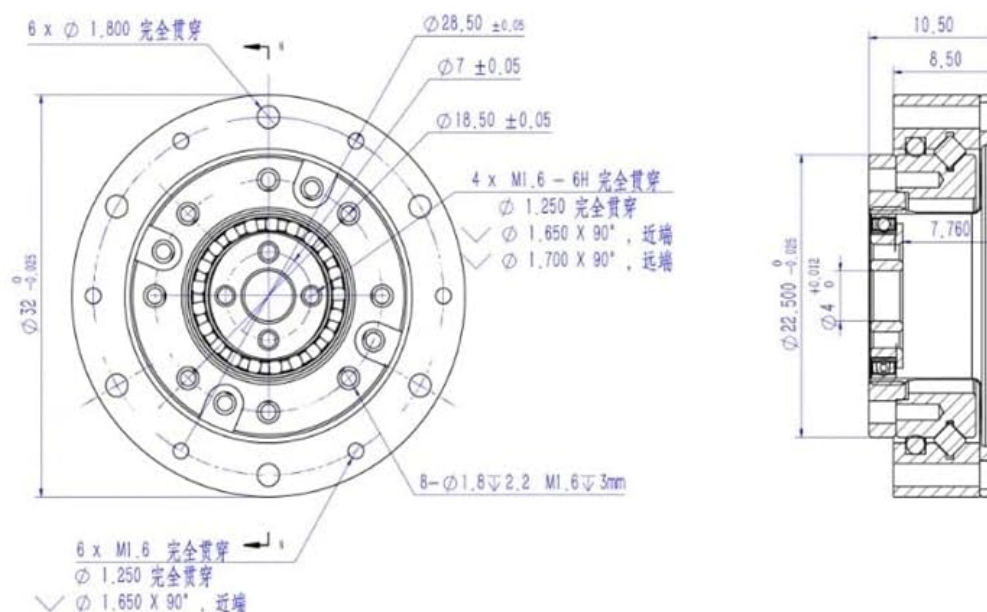
HARMONIC REDUCER

Diameter: $\Phi 32\text{mm}$ | Thickness: **10.5mm** | Weight: **0.041–0.039kg** | Life: **7000–10000**

Precision | Long life | Wide application

Outline Dimensions

Unit: **mm**



SHD-05 Technical Data

Gear ratio	30	50	80
Rated torque at input speed 2000rpm [N.m]	0.23	0.38	0.5
Limit for repeated peak torque [N.m]	0.47	0.87	1.2
Limit for average torque [N.m]	0.35	0.5	0.82
Limit for momentary peak torque [N.m]	0.85	1.7	2.2
Backlash [Arcsec]	≤ 20	≤ 20	≤ 10
Maximum input speed [r/min]	10000		
Limit for average input speed [r/min]	6500		
Moment of inertia(1/4GD) [kgcm ²]	2.5×10^{-4}		

SHD | PRODUCT SERIES

HARMONIC REDUCER

Figure 7.1: Technical data sheet for the SHD-05 Harmonic Reducer, including outline dimensions and performance characteristics for different gear ratios (30, 50, 80).

8. WARRANTY AND SUPPORT

Information regarding product warranty and specific customer support contact details is not provided in this manual. For warranty inquiries or technical assistance, please refer to the product packaging or contact your point of purchase. You may also visit the official Bolisila website for further support resources.

© 2023 Bolisila. All rights reserved.

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question

Open the live page

<https://manuals.plus/asin/B0F4X7F1RM>

More documents and user manuals: <https://manuals.plus/>