DMK Galvanometer Motor DWT20 Y

DMK QILIN Laser Welding Gun Head Galvanometer Motor for DWT20 Y Instruction Manual

Model: Galvanometer Motor DWT20 Y

1. Introduction

This manual provides essential information for the proper installation, operation, and maintenance of the DMK QILIN Laser Welding Gun Head Galvanometer Motor, specifically the DWT20 Y variant. This component is crucial for achieving precise laser beam control in compatible QILIN laser welding systems. Please read this manual thoroughly before use to ensure safe and efficient operation.

2. Product Overview

The galvanometer motor is a high-precision component designed to control the movement of the laser beam within a welding gun head. It is constructed from durable materials to withstand industrial welding environments and ensure long-term reliability.

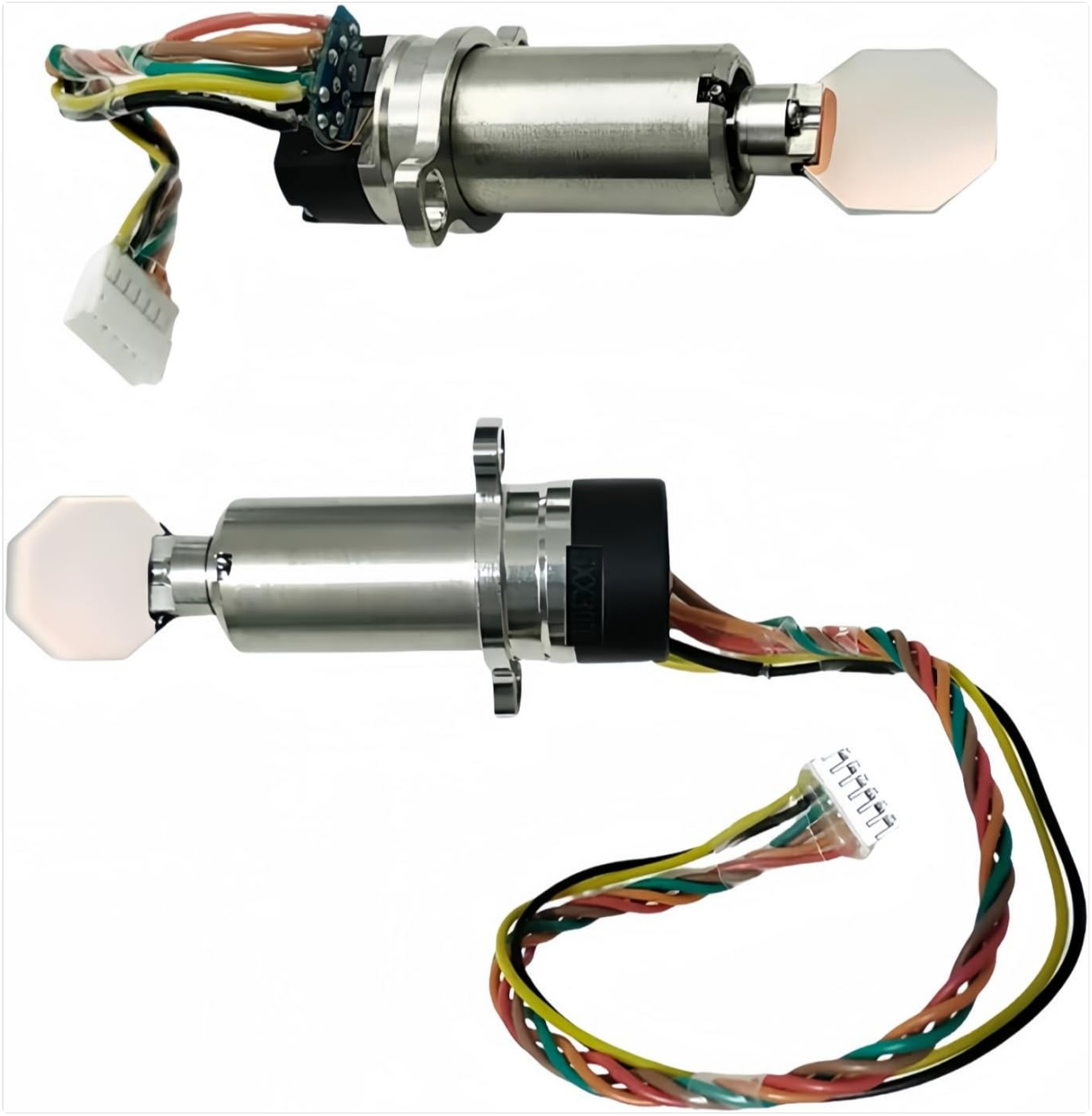

Figure 1: General view of two DMK QILIN Galvanometer Motors, showcasing their design and wiring.

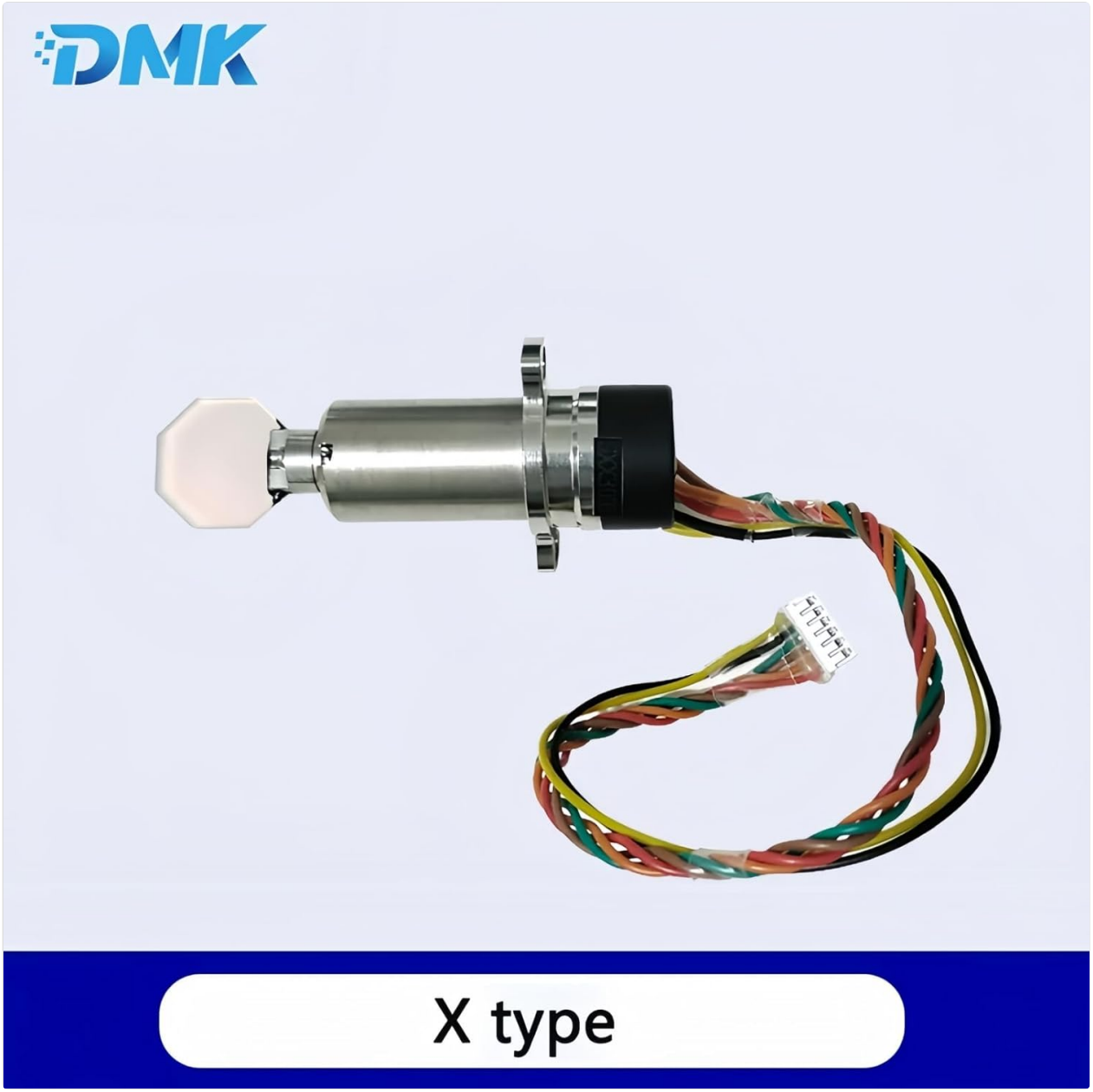

Figure 2: Close-up of an X-type Galvanometer Motor, indicating its specific orientation for laser beam control.

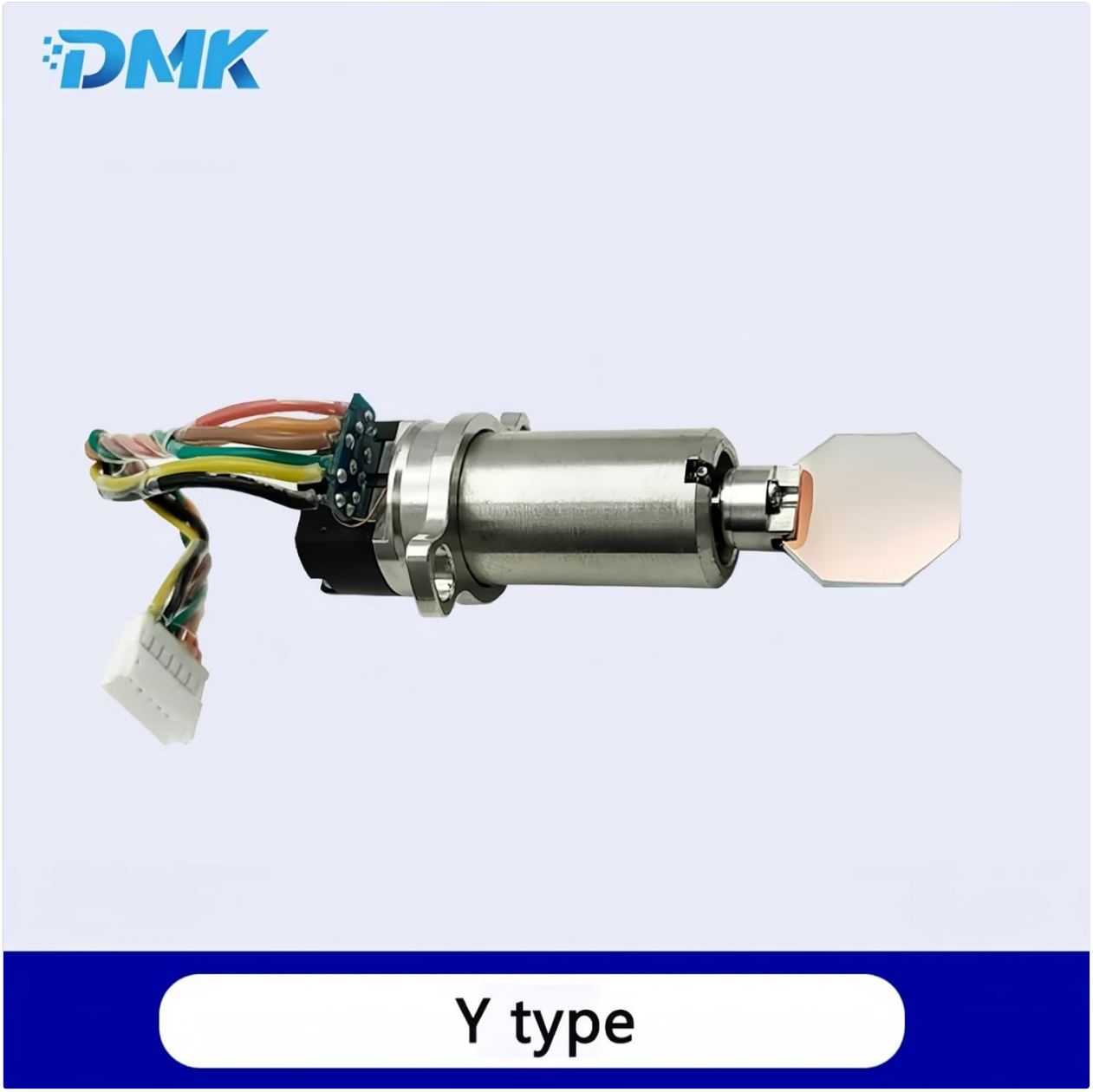

Figure 3: Close-up of a Y-type Galvanometer Motor, indicating its specific orientation for laser beam control.

3. Key Features

- **High Quality and Durable Construction:** Made with a high-strength metal casing, high-quality quartz lens, and durable cabling, designed for rigorous industrial welding applications.
- **Dual Galvanometer Motor System:** Available in X and Y models, allowing for precise dual-axis control when used in compatible laser torches. This product is the Y-type variant.
- **Versatile Compatibility:** Suitable for integration with various QILIN laser welding guns, including V8, V9, V10, BWT20, and BWT20S series.
- **High Precision Control:** Provides fine-tuned motion control to significantly enhance the accuracy and quality of laser welding operations.
- **Easy Installation:** Designed for straightforward integration into existing welding systems, simplifying setup and replacement procedures.

4. Compatibility

This Galvanometer Motor (DWT20 Y variant) is designed for seamless integration with the following QILIN

laser welding gun models:

- QILIN V8
- QILIN V9
- QILIN V10
- QILIN BWT20
- QILIN BWT20S
- QILIN DWT20 (specifically for this variant)

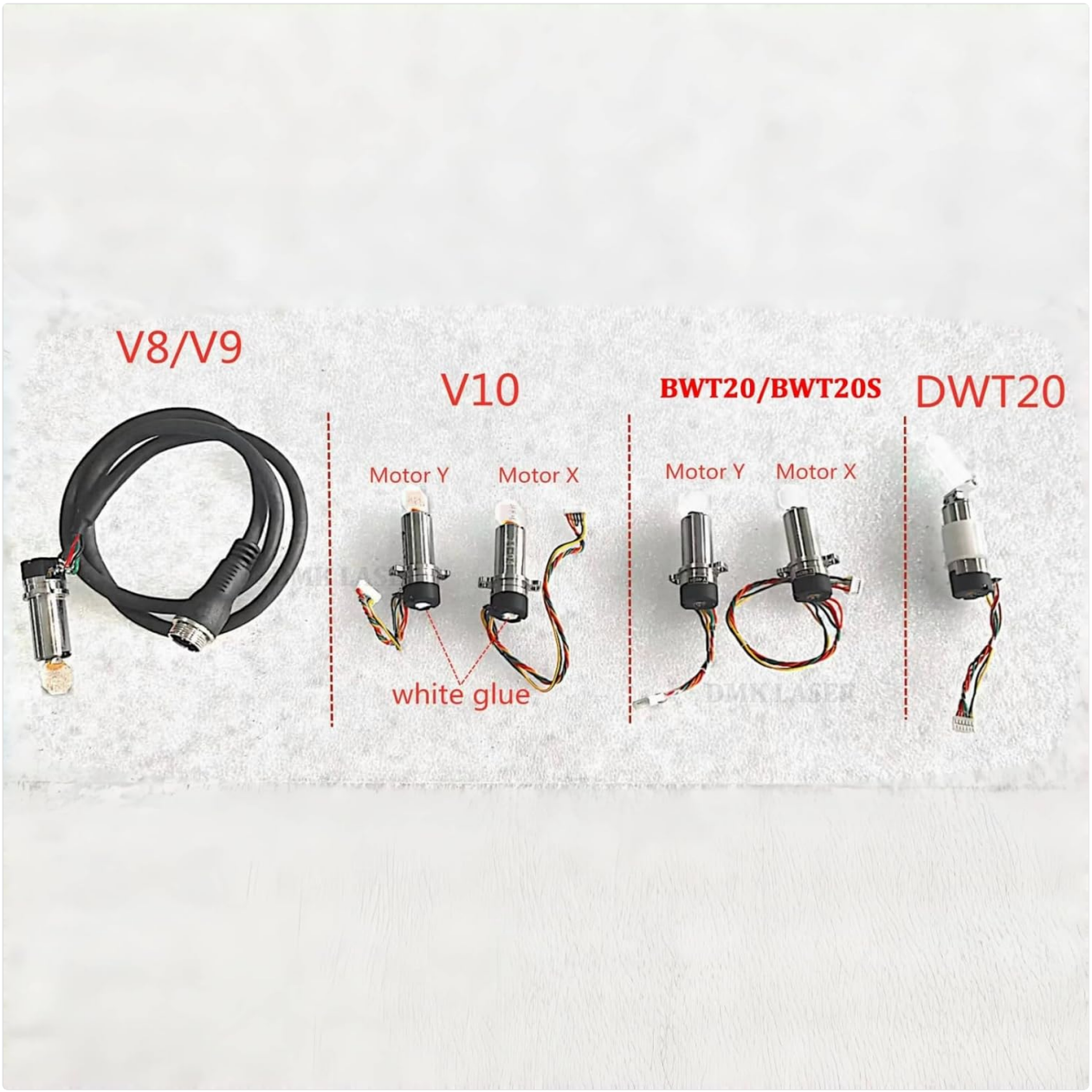

Figure 4: Compatibility chart for various QILIN laser welding gun models and their respective galvanometer motor types.

5. Specifications

Attribute	Detail
Product Name	Galvanometer Motor

Attribute	Detail
Model Type	Y type (for DWT20)
Condition	Brand New
Weight	Approximately 50g
Manufacturer	DMK
Power Source	Integrated with welding system power

6. Setup and Installation

The DMK QILIN Galvanometer Motor is designed for easy installation. Follow these general steps for integration into your compatible QILIN laser welding gun:

1. **Safety First:** Ensure the laser welding system is powered off and disconnected from the main power supply before beginning any installation or maintenance.
2. **Access the Welding Head:** Carefully open the housing of your QILIN laser welding gun head to access the galvanometer motor compartment. Refer to your specific welding gun's manual for detailed instructions on accessing internal components.
3. **Identify Motor Type:** Confirm you have the correct motor type (X or Y) for the intended slot. This product is the Y-type motor.
4. **Connect Wiring:** Carefully connect the motor's wiring harness to the corresponding port within the welding gun head. Ensure all connections are secure and correctly oriented.
5. **Secure the Motor:** Mount the galvanometer motor securely in its designated position within the welding head. Ensure it is firmly seated and does not obstruct any other components.
6. **Close Housing:** Carefully reassemble the welding gun head, ensuring all covers and fasteners are properly secured.
7. **Initial Test:** After installation, power on the welding system and perform a functional test according to your welding system's operational guidelines to verify correct motor function.

7. Operating Principles

The galvanometer motor is an integral part of the laser beam delivery system. During operation, it precisely controls the angle and position of a mirror (reflector) to direct the laser beam across the welding surface. This fine-tuned motion control allows for:

- **High Accuracy:** Enables precise targeting of the laser beam for intricate welding tasks.
- **Speed and Responsiveness:** Allows for rapid adjustments to the laser path, crucial for dynamic welding processes.
- **Consistent Weld Quality:** Contributes to uniform energy distribution and consistent weld bead formation.

The specific operational parameters and control of the galvanometer motor are managed by the main control unit of your QILIN laser welding system. Refer to your welding system's primary instruction manual for detailed operational procedures.

8. Maintenance

To ensure the longevity and optimal performance of your DMK QILIN Galvanometer Motor, consider the following maintenance guidelines:

- **Regular Inspection:** Periodically inspect the motor and its connections for any signs of wear, damage, or loose wiring.
- **Cleanliness:** Keep the area around the motor and its reflector mirror clean. Dust and debris can affect performance. Use appropriate cleaning methods as recommended for optical components.
- **Environmental Control:** Operate the laser welding system within the recommended environmental conditions (temperature, humidity) to prevent premature wear or damage to sensitive electronic and mechanical components.
- **Professional Servicing:** For any complex issues or internal repairs, it is recommended to seek assistance from qualified service personnel or the manufacturer.

9. Troubleshooting

If you experience issues with the galvanometer motor, consider the following general troubleshooting steps:

- **No Laser Beam Movement:** Check all electrical connections to the motor. Ensure the motor is properly seated and secured. Verify that the welding system's control unit is sending appropriate signals.
- **Inaccurate Beam Positioning:** This could indicate a calibration issue with the welding system or potential damage to the motor or its mirror. Consult your welding system's manual for calibration procedures.
- **Unusual Noises:** Any grinding or unusual sounds from the motor area may indicate mechanical wear or obstruction. Power off the system immediately and inspect for foreign objects or damage.
- **System Error Codes:** If your welding system displays error codes related to the galvanometer, refer to your welding system's manual for specific interpretations and solutions.

If problems persist after basic troubleshooting, contact DMK customer support or a certified technician for further assistance.

10. Packing List

The standard package for this product includes:

- Galvanometer Motor (Y-type for DWT20) x 1

11. Warranty and Support

For information regarding product warranty, technical support, or service inquiries, please contact DMK customer service through their official channels. Keep your purchase receipt or proof of purchase for warranty claims.