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> [HSH-Flo](#) /

> HSH-Flo Motorized Ball Valve User Manual

## HSH-Flo 1/4 inch

# HSH-Flo Motorized Ball Valve User Manual

Model: 1/4 inch

## INTRODUCTION

This manual provides comprehensive instructions for the installation, operation, maintenance, and troubleshooting of the HSH-Flo 3 Way 1/4" 12VDC 24VAC/DC L Port Auto Return Brass Electrical Position Feedback On/Off Motorized Ball Valve. Please read this manual carefully before use to ensure safe and efficient operation.

## TECHNICAL SPECIFICATIONS

<b>Valve Body Diameter:</b>	1/4 inch NPT
<b>Valve Body Material:</b>	Brass
<b>Actuator Material:</b>	Engineering Plastics
<b>Sealing Material:</b>	FKM and PTFE
<b>Wiring Diagram:</b>	CR502-B (Electrical Signal Position Feedback Auto Return When Power Off)
<b>Working Voltage:</b>	AC/DC9-24V (Includes 12VDC, 24VAC, 24VDC)
<b>Working Current:</b>	≤500mA
<b>Working Medium:</b>	Fluid, Air
<b>Working Pressure:</b>	Max 145 Psi
<b>Switching Time:</b>	≤5s
<b>Life Time:</b>	70000 times (Testing pressure is 0.4MPa, medium is water)
<b>Actuator Rotation Angle:</b>	90°
<b>Torque Force:</b>	3N.m.

<b>Cable Length:</b>	0.5m
<b>Environment Temperature:</b>	-15°C ~ 50°C
<b>Liquid Temperature:</b>	2°C ~ 90°C
<b>Switch Indicator:</b>	YES
<b>Manual Override:</b>	YES
<b>Protection Class:</b>	IP67

## APPLICATIONS

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The HSH-Flo Motorized Ball Valve is suitable for a wide range of applications, including but not limited to:

- HVAC systems
- Water Treatment facilities
- Chemical Process control
- Air Compressor Drainage
- Automatic Control Systems
- Solar Hot Water Engineering
- Watering Flowers and Regular Humidification systems
- Automatic Humidification in Air Conditioning
- Automatic Control of Small Industrial Equipment
- Environmental Protection and Efficient Water-saving solutions
- Replacement for Solenoid Valves (especially where reliable operation is critical)

## SETUP AND INSTALLATION

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Proper installation is crucial for the optimal performance and longevity of your motorized ball valve. Follow these guidelines:

1. **Mounting:** Securely mount the valve in the desired position, ensuring it is accessible for wiring and maintenance. The valve can be installed in any orientation.
2. **Piping:** Connect the valve to your piping system using appropriate NPT threaded connections. Ensure all connections are tight to prevent leaks.
3. **Wiring:** Refer to the wiring diagram (CR502-B) for correct electrical connections. Ensure the power supply matches the valve's working voltage (AC/DC9-24V). Incorrect wiring can damage the unit.
4. **Initial Check:** Before applying full system pressure, perform a visual inspection for any loose connections or visible damage.



Image: Front view of the HSH-Flo 3 Way Motorized Ball Valve, showing the brass valve body and the grey actuator with wiring.



Image: Side view of the HSH-Flo Motorized Ball Valve, highlighting the compact design of the actuator and the three threaded ports of the brass valve.



Image: Comparison of two HSH-Flo motorized valve actuators, one with a manual override knob (right) and one without (left). The manual override feature is indicated by a blue and white knob.



Image: A visual comparison of different sizes of HSH-Flo motorized ball valves, including 1/4 inch, 3/8 inch, 1/2 inch, 3/4 inch, and 1 inch, with their corresponding internal bore diameters in millimeters.

## OPERATING INSTRUCTIONS

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### Standard Operation

The valve operates automatically based on the electrical signals received. The CR502-B wiring diagram indicates that the valve will open or close depending on the state of the 'SW' (Switch) connection.

- When the **SW is closed**, the valve will open. The actuator automatically powers off once it reaches the fully open position.
- When the **SW is open**, the valve will close. The actuator automatically powers off once it reaches the fully closed position.

The valve provides position feedback:

- **BL & WT** (Blue and White wires) are connected when the valve is fully open.
- **YW & WT** (Yellow and White wires) are connected when the valve is fully closed.

### Manual Override Instructions

In the event of an electrical supply failure, the valve can be operated manually. Follow these steps carefully:

1. **Ensure Power is Off:** Power must be in the off position before attempting manual override.
2. **Engage Manual Knob:** Gently pull up the knob on the actuator by approximately 3mm.
3. **Control Valve Position:** Revolve the knob left or right to control the valve's open or closed position.
4. **Indicator Check:** Observe the red needle in the indicator:
  - When the red needle points to "S", the valve is closed.
  - When the red needle points to "O", the valve is open.
5. **Disengage Manual Knob:** After completing the manual override operation, press down the knob firmly to re-engage for normal electric operation.



Image: Diagram illustrating the flow path through the L-port 3-way ball valve in two positions. Position 1 shows flow from the bottom port to the left port. Position 2 shows flow from the bottom port to the right port.



Image: Electrical wiring diagram for the CR502-B actuator, showing internal circuit components (M for motor, Contril Circuit, Farah capacitors, LS.1, LS.2 for limit switches) and external connections (RD, BK, BL, YW, WT) for power, control switch (SW), and fully open/closed signals.

## MAINTENANCE

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The HSH-Flo motorized ball valve is designed for long-term, reliable operation with minimal maintenance. However,

periodic checks can help ensure its longevity:

- **Visual Inspection:** Regularly inspect the valve and actuator for any signs of leaks, corrosion, or physical damage.
- **Connection Check:** Ensure all electrical and pipe connections remain secure.
- **Cleaning:** Keep the exterior of the actuator clean and free from excessive dust or debris. Do not use harsh chemicals.
- **Operational Test:** Periodically cycle the valve through its full range of motion to confirm smooth operation.

## TROUBLESHOOTING

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If you encounter issues with your HSH-Flo motorized ball valve, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
Valve does not move electrically.	No power supply; Incorrect wiring; Actuator malfunction.	Check power source and connections. Verify wiring against CR502-B diagram. If power and wiring are correct, actuator may need replacement.
Valve leaks from connections.	Loose pipe connections; Damaged threads or seals.	Tighten pipe connections. Inspect threads and seals for damage and replace if necessary.
Valve does not fully open or close.	Obstruction in valve; Actuator limit switch issue; Insufficient torque.	Check for debris inside the valve (ensure system is depressurized). Verify actuator operation. If issue persists, contact support.
Manual override not working.	Knob not pulled up correctly; Internal mechanism issue.	Ensure the knob is pulled up approximately 3mm. If it still doesn't operate, there might be an internal issue requiring professional service.

For issues not listed here or if troubleshooting steps do not resolve the problem, please contact HSH-Flo customer support.

## WARRANTY AND SUPPORT

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HSH-Flo products are manufactured to high quality standards. For information regarding warranty coverage, technical support, or replacement parts, please refer to the official HSH-Flo website or contact their customer service department directly. Keep your purchase receipt for warranty claims.

You can visit the [HSH-Flo Store on Amazon](#) for more product information and support resources.

