Hanna Instruments BL1.5-1

Hanna Instruments BL1.5-1 Blackstone Chemical Dosing Pump

User Manual

1. Introduction

This manual provides essential information for the safe and efficient operation of your Hanna Instruments BL1.5-1 Blackstone Chemical Dosing Pump. The BL1.5-1 is a positive displacement, solenoid-driven pump designed for precise chemical dosing in various industrial and manufacturing applications. Its design minimizes moving parts, enhancing reliability and ensuring consistent flow rates.
Please read this manual thoroughly before installation and operation. Keep it for future reference.

2. Safety Information

WARNING: Always disconnect power before performing any maintenance or installation procedures.

- Ensure the pump is installed by qualified personnel in accordance with local electrical and safety codes.
- Wear appropriate personal protective equipment (PPE) when handling chemicals and operating the pump.
- Verify that the chemical being pumped is compatible with the pump's wetted materials (PTFE, PVDF, FKM, glass) to prevent corrosion and failure.
- Do not operate the pump dry. Ensure the suction line is always submerged in the chemical solution.
- Protect the pump from extreme temperatures, direct sunlight, and corrosive environments.
- Ensure proper ventilation when operating the pump, especially with volatile chemicals.

3. Product Overview

The Hanna Instruments BL1.5-1 Blackstone pump is engineered for durability and precision. It features a solenoid-driven mechanism that ensures each stroke is identical, providing highly accurate and consistent flow rates. The pump is constructed with high-quality, chemical-resistant materials including Polytetrafluoroethylene (PTFE), Polyvinylidene Fluoride (PVDF), Fluoroelastomer (FKM), and glass components, making it suitable for a wide range of aggressive chemicals.

Figure 1: Hanna Instruments BL1.5-1 Blackstone Chemical Dosing Pump. This image shows the front view of the pump, highlighting its compact design and control knob.

Key Features:

- Positive displacement solenoid-driven design.
- Maximum flow rate of 1.5 liters per hour (LPH).
- Maximum pressure of 13 bar.
- Adjustable flow rate control from 0 to 100%.
- LED indicator for stroke confirmation.
- Corrosion-resistant materials (PTFE, PVDF, FKM, glass).
- Versatile mounting options (horizontal or vertical).

4. Setup and Installation

4.1 Unpacking

Carefully remove the pump and all accessories from the packaging. Inspect for any signs of damage. Report any damage to your supplier immediately.

4.2 Mounting

The Blackstone pump offers flexible mounting options:

- **Horizontal Mounting:** The pump's broad, flat base and pre-drilled mounting holes allow for secure installation

on a tank, shelf, or floor.

- **Vertical Mounting:** Mounting holes on the rear of the pump housing facilitate vertical installation on a wall, tank, or machine. Ensure the mounting surface is stable and capable of supporting the pump's weight when filled with fluid.

Ensure that the pump valve assembly and controls on the front of the unit are easily accessible after mounting for installation and flow adjustments.

4.3 Connecting Valves

Each BL pump is supplied with discharge and suction valves. Connect these valves securely to the appropriate ports on the pump. Ensure all connections are tight to prevent leaks, especially when dealing with corrosive chemicals.

- **Suction Line:** Connect the suction valve to the chemical source. Ensure the suction line is free of air bubbles and fully submerged in the chemical solution.
- **Discharge Line:** Connect the discharge valve to the point of chemical injection.

4.4 Power Connection

The pump accepts 115 V, 50/60 Hz power. Connect the pump to a grounded power outlet. Ensure the power supply matches the pump's requirements. Use a dedicated circuit if possible to avoid interference with other equipment.

5. Operating Instructions

5.1 Initial Start-up and Priming

Before starting, ensure all connections are secure and the suction line is properly submerged. The pump may need to be primed to remove air from the system.

1. Turn the flow rate control knob to its maximum setting (100%).
2. Apply power to the pump.
3. Observe the LED indicator. It will flash with each stroke.
4. Allow the pump to run until a steady flow of chemical is observed at the discharge point, indicating that the system is primed and air-free.
5. Once primed, adjust the flow rate as needed.

5.2 Adjusting Flow Rate

The Hanna Instruments BL Series Blackstone pumps are equipped with a single control for pump output: an external flow rate control potentiometer located on the front face of the pump.

- Rotate the knob clockwise to increase the flow rate.
- Rotate the knob counter-clockwise to decrease the flow rate.

This knob allows you to adjust the percentage of flow from 0% to 100% of the pump's rated capacity (1.5 LPH). The LED indicator will flash with each stroke, allowing you to visually confirm the pump's operation and stroke rate.

6. Maintenance

WARNING: Disconnect power before performing any maintenance.

6.1 Regular Inspection

- Periodically inspect all tubing and connections for leaks, cracks, or signs of wear. Replace damaged components immediately.
- Check the suction and discharge valves for proper operation and cleanliness. Chemical residue can build up and affect performance.
- Ensure the pump's exterior is clean and free of chemical spills.

6.2 Cleaning

If chemical residue builds up, clean the pump's exterior with a damp cloth. For internal cleaning or descaling, consult a qualified technician or refer to specific chemical cleaning procedures compatible with the pump's materials.

6.3 Storage

If the pump is to be stored for an extended period, flush it thoroughly with clean water to remove all chemical residues. Disconnect power and store in a dry, clean environment.

7. Troubleshooting

Problem	Possible Cause	Solution
Pump not operating / No LED indicator	No power supply; Faulty power connection; Internal electrical fault.	Check power connection and outlet; Ensure power switch is ON; Contact technical support if power is confirmed.
No flow or inconsistent flow	Air in suction line; Clogged suction/discharge valve; Suction line not submerged; Chemical source empty; Flow rate set too low.	Prime the pump (see Section 5.1); Clean valves; Ensure suction line is fully submerged; Refill chemical source; Increase flow rate setting.
Leaks at connections	Loose fittings; Damaged tubing/valves.	Tighten all connections; Inspect and replace any damaged tubing or valves.
Pump making unusual noise	Air in the system; Mechanical obstruction; Worn components.	Prime the pump; Inspect for obstructions; Contact technical support.

8. Specifications

Model: BL1.5-1

Manufacturer: Hanna Instruments

Pump Type: Positive Displacement, Solenoid-Driven

Maximum Flow Rate: 1.5 LPH (Liters Per Hour)

Maximum Pressure: 13 bar

Power Requirement: 115 V, 50/60 Hz

Power Source Type: AC/DC

Wetted Materials: Polytetrafluoroethylene (PTFE), Polyvinylidene Fluoride (PVDF), Fluoroelastomer (FKM), Glass

Weight: 6.6 Pounds (approx. 2.99 kg)

Package Dimensions: 27.94 x 27.18 x 23.62 cm

9. Warranty and Support

9.1 Warranty Information

For detailed warranty information, please refer to the warranty card included with your product or visit the official Hanna Instruments website. Keep your purchase receipt as proof of purchase.

9.2 Technical Support

If you encounter any issues not covered in this manual or require further assistance, please contact Hanna Instruments customer support. Have your product model number (BL1.5-1) and serial number ready when contacting support.
You can find contact information on the official Hanna Instruments website or through your local distributor.