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U.S. Solid USS-NSV00003

U.S. Solid 1/2" Brass Electric Solenoid Valve Instruction Manual

Model: USS-NSV00003

1. INTRODUCTION AND OVERVIEW

This manual provides essential information for the safe and effective installation, operation, and maintenance of your U.S. Solid 1/2" Brass Electric Solenoid Valve. This valve is designed for controlling the flow of air, water, oil, and fuel, featuring a normally closed configuration and a durable VITON gasket for chemical resistance.

Please read this manual thoroughly before installation and operation to ensure proper function and to prevent damage or injury.

2. SAFETY INFORMATION

WARNING: This product may expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

- Always disconnect power before installing, servicing, or performing maintenance on the valve.
- Ensure the valve is compatible with the fluid or gas being controlled. The VITON gasket is suitable for gasoline, kerosene, and other organic solvents. Do NOT use NBR gaskets for gasoline.
- Install the valve in a location that is easily accessible for inspection and maintenance.
- Ensure proper electrical connections are made according to local codes and regulations.
- Avoid exceeding the maximum pressure and temperature ratings specified for the valve.

3. PRODUCT FEATURES

- **1/2" NPT (USA National Pipe Thread):** Commonly used standard pipe thread in the U.S.
- **Solid Brass Construction:** The valve's body is made of solid brass, offering excellent corrosion resistance.
- **Unidirectional Flow:** An arrow on the valve body indicates the intended flow direction. Horizontal mounting is recommended.
- **Direct Acting and Normally Closed:** The solenoid's magnetic field directly moves the plunger to close the orifice for fluid or gas flow. The valve only opens when energized.

- **VITON Gasket:** Viton is a chemically inert material, ideal for use with gasoline, kerosene, and other organic solvents.
- **IP65 Rated:** Provides protection against dust ingress and low-pressure water jets from any direction.



Figure 3.1: Front view of the U.S. Solid 1/2" Brass Electric Solenoid Valve.



Figure 3.2: Illustration of Normally Closed valve operation (Power OFF = Closed, Power ON = Open).

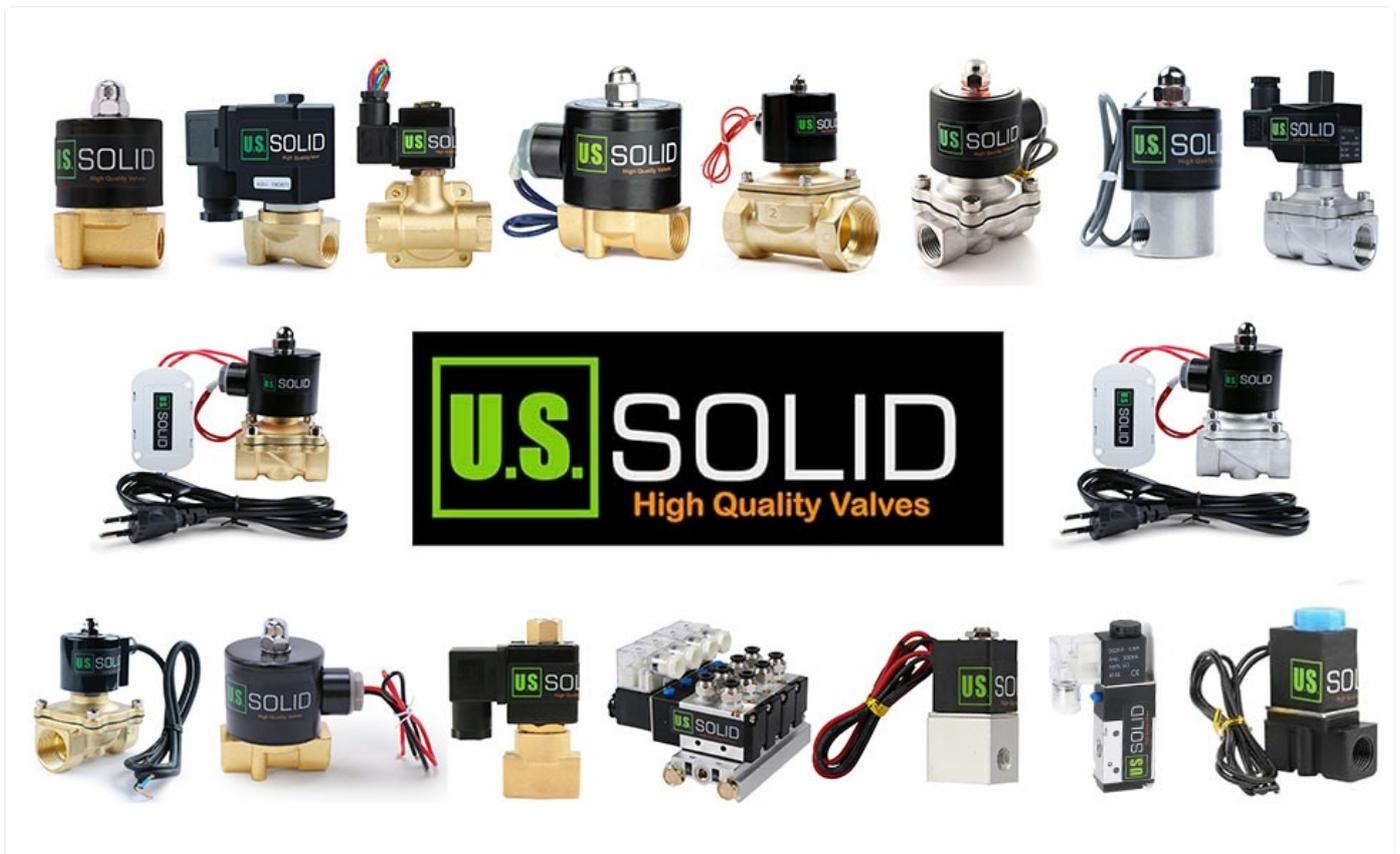


Figure 3.3: Explanation of IP65 Ingress Protection rating, indicating dust tight and protection against water jets.

4. SETUP AND INSTALLATION

4.1 Mechanical Installation

- Identify the inlet and outlet ports. The valve is unidirectional, and an arrow on the body indicates the flow direction.
- Apply appropriate thread sealant (e.g., PTFE tape) to the 1/2" NPT threads before connecting to piping.
- Mount the valve horizontally for optimal performance.
- Ensure all connections are tight to prevent leaks.



Figure 4.1: Key dimensions of the solenoid valve for installation planning.

4.2 Electrical Connection

The valve operates on 12V DC. Connect the power supply to the solenoid coil terminals. The polarity for DC operation typically does not matter for the coil itself, but ensure your power supply is correctly wired.

- Connect the positive (+) lead from your 12V DC power source to one terminal of the solenoid coil.
- Connect the negative (-) lead (ground) from your 12V DC power source to the other terminal of the solenoid coil.
- Ensure all electrical connections are secure and insulated to prevent short circuits.

5. OPERATING INSTRUCTIONS

This is a normally closed (NC) solenoid valve. This means that when no power is applied to the coil, the valve remains in a closed position, preventing fluid or gas flow. When 12V DC power is applied to the coil, the solenoid energizes, pulling the plunger and opening the valve to allow flow.

- To open the valve: Apply 12V DC power to the solenoid coil.

- To close the valve: Remove 12V DC power from the solenoid coil.
- The valve is designed for short cycles. For applications requiring continuous flow for extended periods (e.g., over 3 hours), consider using a motorized valve instead.

6. MAINTENANCE

Regular inspection and maintenance can extend the lifespan of your solenoid valve.

- **Cleaning:** Periodically inspect the valve for debris or buildup, especially if used with fluids containing particulates. The valve features a removable plug for easy internal maintenance and cleaning.
- **Gasket Inspection:** Check the VITON gasket for signs of wear, cracking, or chemical degradation. Replace if necessary to prevent leaks.
- **Coil Inspection:** Ensure the solenoid coil is free from physical damage or excessive heat buildup.
- **Leak Checks:** Regularly check all connections for leaks.



Figure 6.1: Close-up of the valve's base, showing the screws that allow access for maintenance.

7. TROUBLESHOOTING

Problem	Possible Cause	Solution
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Problem	Possible Cause	Solution
Valve does not open when energized.	No power, incorrect voltage, faulty coil, clogged orifice, plunger stuck.	Verify 12V DC power supply. Check electrical connections. Inspect coil for damage. Clean internal components.
Valve does not close when de-energized.	Debris in valve, worn gasket, spring issue.	Clean valve internals. Inspect and replace gasket if necessary.
Leakage from valve body or connections.	Loose connections, damaged threads, worn gasket.	Tighten connections. Reapply thread sealant. Replace gasket.
Reduced flow through valve.	Partial clog, insufficient pressure.	Clean valve internals. Verify system pressure meets requirements.

8. SPECIFICATIONS

- **Model Number:** USS-NSV00003
- **Material:** Brass, Viton
- **Exterior Finish:** Brass
- **Inlet Connection Size:** 0.5 Inches NPT
- **Inlet Connection Type:** Threaded
- **Outlet Connection Size:** 0.5 Inches NPT
- **Outlet Connection Type:** Threaded (FNPT)
- **Number of Ports:** 2
- **Valve Type:** Solenoid Valve
- **Operation:** Direct Acting, Normally Closed
- **Voltage:** 12V DC
- **Power Consumption:** 12W
- **Temperature Range:** -10°C to 120°C
- **Pressure Range (Air/Water):** 0-8 Bar
- **Pressure Range (Oil):** 0-5 Bar
- **Duty Cycle:** ED 100%
- **Specification Met:** IP65
- **Item Weight:** 1.66 pounds
- **Package Dimensions:** 5.08 x 3.43 x 2.44 inches
- **Country of Origin:** China
- **UPC:** 888107093619





USS-NSV00003

1/2"

-10°C-120°C

DC 12V 12W

ED 100% IP 65

Air/Water : 0-8 Bar

Oil: 0-5 Bar

Figure 8.1: Top view showing key specifications printed on the solenoid coil.

9. WARRANTY AND SUPPORT

U.S. Solid offers a 1-year or money-back promise for their products, ensuring customer satisfaction.

For technical support, warranty claims, or further inquiries, please visit the official U.S. Solid store or contact their customer service directly.

Official U.S. Solid Store: [U.S. Solid Amazon Store](#)

