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Swagelok SS-43GF4

Swagelok SS-43GF4 Ball Valve Instruction Manual

Model: SS-43GF4

1. INTRODUCTION

This manual provides essential information for the safe and effective installation, operation, and maintenance of the Swagelok SS-43GF4 40G Series 2-way ball valve. This valve is designed for reliable shutoff in various industrial applications. Please read this manual thoroughly before proceeding with any procedures.

The Swagelok SS-43GF4 is a 316 stainless steel ball valve with 1/4 inch female NPT connections, rated for a maximum operating pressure of 3000 psi.

2. SAFETY INFORMATION

WARNING: Improper installation, operation, or maintenance can lead to system failure, property damage, serious injury, or death. Always follow industry-standard safety practices and local regulations.

- Ensure the system is depressurized and drained before installing or servicing the valve.
- Wear appropriate personal protective equipment (PPE), including eye protection and gloves.
- Do not exceed the maximum operating pressure or temperature ratings specified for the valve.
- Verify compatibility of valve materials with the system media.
- Only qualified personnel should install, operate, or maintain this valve.

3. PRODUCT DESCRIPTION AND FEATURES

The Swagelok SS-43GF4 is a high-quality 40G Series ball valve constructed from 316 stainless steel, ensuring durability and corrosion resistance in demanding environments. Key features include:

- **Material:** 316 Stainless Steel
- **Valve Type:** 2-Way Ball Valve
- **Inlet/Outlet Connections:** 1/4 inch Female NPT
- **Maximum Operating Pressure:** 3000 psi (206 bar)
- **Temperature Rating:** Up to 300°F (148°C) at 2500 psi (172 bar)
- **Handle:** Black lever handle for quarter-turn operation.



Figure 3.1: Overview of the Swagelok SS-43GF4 Ball Valve. This image shows the complete valve assembly, highlighting its stainless steel construction and black lever handle.

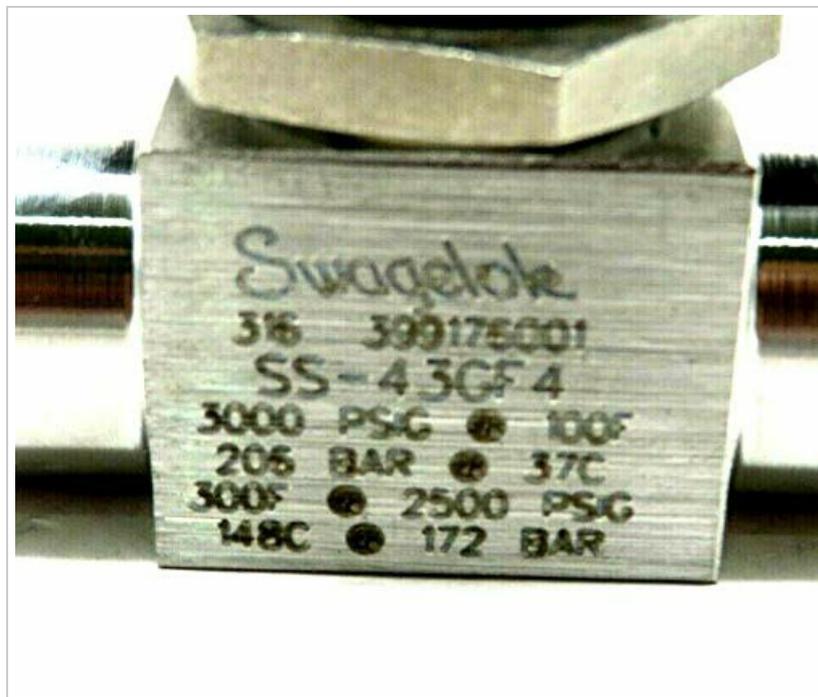


Figure 3.2: Detailed view of the valve body, showing the Swagelok brand, model number (SS-43GF4), material (316), and pressure/temperature ratings engraved on the side.

4. SETUP AND INSTALLATION

Proper installation is crucial for the safe and reliable performance of the valve. Refer to Swagelok's official

installation guidelines for detailed instructions on NPT connections.

1. **Preparation:** Ensure the system is depressurized and free of media. Clean the valve ports and connecting pipe threads to remove any debris or contaminants.
2. **Thread Sealant:** Apply a suitable thread sealant (e.g., PTFE tape or pipe thread sealant) to the male NPT threads of the connecting pipes. Ensure the sealant does not enter the flow path.
3. **Connection:** Hand-tighten the valve onto the pipe threads. Then, using a wrench on the valve body (not the handle), tighten the connection further. Refer to Swagelok's torque specifications for NPT connections to achieve a leak-tight seal without over-tightening.
4. **Support:** Ensure the valve and connected piping are adequately supported to prevent stress on the connections.
5. **Leak Testing:** After installation, slowly pressurize the system and perform a leak test using an appropriate leak detection solution. Address any leaks immediately.



Figure 4.1: View of the 1/4 inch female NPT connection. This image illustrates the threaded port where system piping will be connected.

5. OPERATING INSTRUCTIONS

The Swagelok SS-43GF4 ball valve is designed for simple quarter-turn operation.

- **Opening the Valve:** Rotate the handle 90 degrees (a quarter-turn) until it is parallel with the flow path. This indicates the valve is fully open.
- **Closing the Valve:** Rotate the handle 90 degrees (a quarter-turn) until it is perpendicular to the flow path. This indicates the valve is fully closed.
- **Flow Direction:** This 2-way ball valve is generally bi-directional; however, always refer to system design for

specific flow requirements.

- **Actuation:** Operate the handle smoothly. Do not use excessive force, as this may damage the valve or its components.

6. MAINTENANCE

Regular inspection and maintenance can extend the life of your Swagelok valve and ensure continued reliable performance.

- **Inspection:** Periodically inspect the valve for signs of external leakage, corrosion, or damage to the handle or body.
- **Cleaning:** Keep the exterior of the valve clean. Avoid using harsh chemicals that may damage the stainless steel finish or seals.
- **Seal Replacement:** Internal seals may wear over time. If leakage occurs through the stem or seat, the valve may require servicing or seal replacement. Contact Swagelok or an authorized distributor for service kits and instructions.
- **Depressurization:** Always depressurize and drain the system before performing any maintenance on the valve.

7. TROUBLESHOOTING

This section addresses common issues that may arise during the use of the Swagelok SS-43GF4 ball valve.

Problem	Possible Cause	Solution
External Leakage at Connections	Improperly tightened NPT connections, insufficient thread sealant, damaged threads.	Depressurize system. Re-tighten connections to proper torque. If necessary, disassemble, inspect threads, reapply sealant, and reassemble.
Internal Leakage (Valve not fully sealing)	Seat wear, debris in valve, damaged ball or seats.	Depressurize system. Cycle valve several times to dislodge debris. If problem persists, valve may require servicing or replacement of internal components. Contact Swagelok.
Difficulty Operating Handle	Stem packing issues, internal corrosion, debris, or excessive system pressure.	Ensure system pressure is within operating limits. Depressurize system. Inspect for external damage or corrosion. If stiff, valve may require servicing. Do not force the handle.

For issues not listed or if solutions do not resolve the problem, contact an authorized Swagelok service representative.

8. SPECIFICATIONS

Detailed technical specifications for the Swagelok SS-43GF4 Ball Valve:

Specification	Value
Model Number	SS-43GF4
Brand	Swagelok

Specification	Value
Valve Type	Ball Valve (40G Series, 2-Way)
Material	316 Stainless Steel
Inlet Connection Type	1/4 inch Female NPT
Outlet Connection Type	1/4 inch Female NPT
Number of Ports	2
Maximum Operating Pressure	3000 psi (206 bar)
Maximum Temperature Rating	300°F (148°C) at 2500 psi (172 bar)
Item Weight	Approximately 1 Pound

9. WARRANTY AND SUPPORT

For specific warranty information, please refer to the official Swagelok warranty policy available on their website or contact an authorized Swagelok distributor. Swagelok products are known for their quality and reliability, backed by comprehensive support.

For technical assistance, spare parts, or service, please contact your local authorized Swagelok sales and service center. You can find contact information on the official Swagelok website: www.swagelok.com