TEKLEEN®
AUTOMATIC SELF-CLEANING
WATER FILTERS

INSTALLATION
& OPERATION MANUAL

COARSE SCREEN FLUSH FILTER SERIES (CSF)

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About The Installation & Operation Manual

Purpose of the Manual

Welcome to worry-free water filtration with your new Tekleen CSF Filter!

This guide is your go-to resource for keeping your filtration system running smoothly for years to come. Let's get started and ensure peak performance right from the beginning.

Scan the QR code to access the digital version of this manual at www.tekleen.com.

COARSE SCREEN FLUSH FILTER SERIES (CSF)

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This manual is intended as a general guide for the proper installation, operation, and maintenance of Tekleen filters. It may not address all specific system configurations or site conditions. Tekleen assumes no liability for improper installation or misuse of this equipment. All installation and service work should be performed by qualified personnel in accordance with local codes and safety regulations. Specifications and content in this manual are subject to change without notice. No part of this publication may be reproduced, stored, or transmitted in any form without prior written permission from Tekleen Automatic Filters, LLC.

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Checklist for Optimal Filter Performance

To ensure your CSF filter operates at peak efficiency, please verify the following:

Flush Line:

- Ensure there is no back pressure on the flush line.
- Use the correct waste line size: a 2" waste line for a 1" valve, and a 3" waste line for a 2" valve.
- Do *not* use rubber hosing or flexible tubing for the waste line; use rigid piping.

Differential Pressure (DP) Gauge

- Mount the DP gauge within 3 feet of the filter. Longer tubing can lead to inaccurate readings.

Differential Pressure (DP) Gauge Mounting

- Apply nonconductive sealant to the contact points on the backside of the DP gauge to protect it from water.
- Apply a non-conductive silicone sealant over the two screw terminals on the back of the gauge. This protects them from water. If silicone isn't available, mount the gauge upside down. This way, if water drips from the tubing, it won't short out the gauge

Outlet Valve (for Open Discharge)

- If the filter outlet discharges to a tank or open atmosphere, install a valve at the filter outlet.
- This valve is necessary to maintain a minimum working pressure of 40 PSI during the cleaning cycle.

Flush Valve Wiring

- the flush valve fails to open or close, verify that its connections to the controller are wired correctly (Refer to the wiring diagram on page 16).

Surge Protection

- It is recommended that a surge protector be installed on the power line that feeds the electronic controller.

For assistance with proper installation, please email digital photos and your contact information to info@tekleen.com prior to startup. For future reference, video tutorials are available at www.tekleen.com

SECTION I

1.1 What is the CSF Series?

Welcome to hassle-free water filtration with your new Tekleen CSF Automatic Filter!
Think of the CSF series as your first line of defense against larger particles in your water. These smart, automatic, self-cleaning water filters are built with a robust screen at their core. The system is made up of three key components working in perfect harmony:

1. **The Durable Filter Body:** Housing the strong screen that captures those bigger bits.
2. **The Efficient Flushing Valve:** Automatically expelling the collected debris to keep the screen clear.
3. **The Smart Electronic Controller:** The brain of the system, managing the self-cleaning process for consistent performance.

With your CSF filter, you can expect a continuous flow of cleaner water with minimal intervention. Let's explore how it works!

1.2 How It Works: The Simple Power of Flow

1. **The CSF filter uses a straightforward yet effective process to keep your water clean:**
2. **Water In, Particles Out:** Pressurized water enters the filter and flows through a durable screen. This screen traps larger contaminants as the clean water passes through to the outlet.
3. **Pressure Knows Best:** As the screen captures these particles, a slight difference in pressure builds up. The intelligent controller senses this change.
4. **Automatic Flush Activated:** Once the pressure difference reaches a set point, the controller automatically opens the flush valve.
5. **Direct Flow Cleaning:** Opening the flush valve creates a direct flow of water across the screen, perpendicular to the main flow. This "orthogonal flow" powerfully washes away the accumulated contaminants, sending the dirty water out through the flush valve.
6. **Uninterrupted Filtration:** The entire self-cleaning cycle is quick, typically lasting just 6-10 seconds. Best of all, the main flow of filtered water continues without interruption during this brief cleaning!

1.3 Ideal Applications

Tekleen CSF water filters are your ideal solution for removing larger particles from virtually any water source. They excel in applications such as:

1. Lake and river water
2. Cooling water systems
3. Protecting sensitive instruments and sensors
4. Ensuring the longevity of pump seals
5. Efficient irrigation systems

And many other applications where removing oversized particles is crucial!

1.4 Smart Design You Can Rely On:

Your CSF filter is engineered with several smart features:

No Dirty Water Feedback: Unlike some older filtration methods, the CSF design prevents any backflow of contaminated water into your clean water system. You get either clean water or no water at all during the flush.

Let's move on to setting up your CSF filter for optimal performance!

1.5 Filter Specification Chart

Model	Flange Size	Screen Area	Max. Flow	Empty Weight	Service Area
	Inch	Sq. Ft.	GPM	Lbs.	Inch
CSF 3	3	2	300	100	12
CSF 4	4	2	500	120	12
CSF 6	6	2.5	800	140	14
CSF 8	8	3.9	1320	200	21
CSF 10	10	5.6	1750	300	25
CSF 12	12	8.4	2630	400	36.5
CSF 14	14	9.5	4000	500	36.5
CSF 16-L	16	12.4	6000	600	36.5
CSF 16-S	16	18	10000	1000	36.5

SECTION II

2.1 Choosing the Right Spot & Orientation

Think about where your filtered wastewater will be directed and ensure you have enough room around the filter for easy access, especially if you ever need to inspect or remove the internal filter element (check the Filter Specifications Chart for recommended service area).

The great thing about your Tekleen CSF filter is its adaptability! It can sit directly on its inlet and outlet pipes or be mounted on a stand if that suits your setup better. In fact, you can install it in any orientation – vertical, horizontal, even upside down – it's designed to perform in various positions. Just be sure to mount the electronic controller nearby for convenient access and wiring.

2.2 Plumbing Connections: Setting Up the Flow

Proper plumbing is essential for efficient operation. Here's what you need to know:

1. **Waste Line Size is Key:** The pipe that carries away the flushed wastewater needs to be at least one size larger in diameter than the flush valve itself (e.g., a 2" flush valve requires a 3" or larger waste pipe).
2. **Keep it Direct:** The waste pipe should be as short as possible and ideally have no more than one bend (elbow). This helps minimize any back pressure on the flush line.
3. **Avoid Uphill Runs:** Don't run the flush line upwards. This can negatively affect the pressure difference needed for the cleaning cycle. If an uphill run is unavoidable, please contact our experts for specific recommendations.
4. **Use Rigid Piping:** The flush line must be made of rigid pipe. Flexible tubing or rubber hoses can collapse and restrict flow, reducing the filter's cleaning effectiveness.
5. **Install an Inlet Shut-Off Valve:** A block valve should be installed at the filter's inlet. During the initial startup, open this valve very slowly to prevent a sudden surge of pressure when the pump starts. Once the pump is running smoothly, you can fully open the inlet valve. This simple precaution protects your filter from potential pressure shock.

2.3 Connecting the Controller, Pressure Gauge, and Valve

Before you apply power to the electronic controller, let's make all the necessary connections between the controller, the Differential Pressure (DP) Gauge, and the electric ball valve (refer to the wiring diagram on page 15).

Here's a step-by-step guide:

1. **Electric Ball Valve Connection:** Connect the ball valve to the controller as shown in the wiring diagram on page 15. Once connected, briefly activate the manual start switch on the GB6 controller and visually confirm that the ball valve opens and closes correctly.
2. **Flushing Time:** Finding the Right Duration: The flush duration is typically preset to 6-10seconds.
3. **Pressure Difference Setting:** The differential pressure switch is usually preset to trigger cleaning at a 7 PSI difference. You can adjust this setting if needed (refer to your specific electronic controller manual for instructions).

Connecting the 1/4 Inch Tubing for the DP Gauge:
Use the provided 1/4 inch diameter tubing for these connections:

1. **Low-Pressure Connection:** Attach one end of a tube to the "low" pressure 1/4" fitting located on the outlet flange of the filter. Connect the other end of this tube to the fitting on the DP switch labeled "low pressure."
2. **High-Pressure Connection:** Attach one end of another tube to the "high" pressure 1/4" fitting on the inlet flange of the filter. Connect the other end to the fitting on the DP switch marked "high pressure."

Important Note:
Keep these tubing runs as short as possible, ideally no more than two feet and definitely not exceeding three feet. Longer tubing can cause a pressure drop, which might prevent the electronic controller from operating correctly.

SECTION III

3.1 Initial Startup: Getting the Flow Right

Starting your Tekleen CSF correctly is important for its long-term performance.

Here's how to do it:

1. **Gentle Start:** When you first turn on your pump, make sure the shut-off valve (block valve) at the filter's inlet is only partially open. This prevents a sudden surge of high pressure that could potentially stress the filter.
2. **Gradual Flow:** Once the pump is running and the system is online, slowly and fully open the inlet block valve. This controlled increase in flow will protect your filter from any pressure spikes.
3. **Priming the System:** When you first fill your water pipeline, there might not be enough back pressure after the filter for the automatic cleaning cycle to work perfectly. To help with this initial phase, you might need to temporarily create some back pressure.
4. **Temporary Back Pressure (if needed):** Install a valve (like a gate valve, ball valve, or butterfly valve) at the outlet of the filter and partially close it. The goal is to have at least 40 PSI on the pressure gauge at the filter's inlet. This temporary back pressure will allow the self-cleaning cycle to function correctly as the system fills.
5. **Adjusting for Optimal Flow:** Once the entire system is full of water and pressurized, you can adjust the downstream valve. The key is to maintain a minimum pressure of 40 PSI at the filter's inlet during the cleaning cycle.
6. **Maintaining Pressure in Intermittent Use:** If your main water flow to the filter is intentionally stopped and the pipeline drains, consider installing a flow control or pressure-sustaining valve downstream from the filter. This will automatically create the necessary back pressure for proper flushing when the main line is repressurized.
7. **First Cleaning Cycle Check:** After the system is fully pressurized, find the manual flush button on the electronic controller and press it. Verify that the flush valve opens completely. During this first cleaning cycle, the system will likely release trapped air. You might need to manually trigger the cleaning cycle a few times to ensure all the air is out and proper cleaning is achieved.

3.2 Understanding Cleaning-Cycle Requirements

For your Tekleen CSF to effectively remove those larger particles, it needs the right operating conditions:

1. **Minimum Working Pressure:** The filter needs a minimum pressure of 40 PSI at the inlet during the cleaning cycle to ensure an effective flush.
2. **Pump Power Considerations:** Maintaining this minimum pressure during cleaning depends on having a pump with enough power. When choosing a pump, consider these three key factors:
   - **Required Working Pressure (40 PSI):** The minimum pressure needed for effective cleaning.
   - **Process Flow:** The normal volume of water flowing through the filter when it's not cleaning.
   - **Flush Flow:** The volume of water used during a cleaning cycle. This rate depends on the size of the flush valve.
3. **Calculating Your System's Flow Needs:** To determine if your pump can handle your system's demands, calculate the total flow: **Process Flow + Flush Flow=Total Flow**
4. **Understanding Your Pump's Performance:** Refer to the performance curve provided by your pump manufacturer. This graph shows how much pressure your pump can deliver at different flow rates. Find your calculated "Total Flow" on the curve. The corresponding point will show you the pressure your pump will maintain at that flow. If this pressure is 40 PSI or greater, your pump is suitable for your system.
5. **Real-World Examples:**
   a. **Scenario 1:** Not Enough Pressure: Let's say your process flow is 190 gallons per minute (gpm) and your filter's flush flow is 40 gpm, making a total flow of 230 gpm. If the pump curve in Figure 3.2 (imagine a simple graph here) shows that at 230 gpm the pressure drops below 40 PSI, then your pump won't provide enough pressure for effective cleaning.
   b. **Scenario 2: Sufficient Pressure:** If your process flow is 150 gpm and the flush flow is 40 gpm, the total flow is 190 gpm. If the pump curve shows that at 190 gpm the pressure is above 40 PSI, then your pump will provide enough pressure for the filter to clean itself effectively.

By understanding these operational guidelines, you can ensure your Tekleen CSF filter runs efficiently and keeps those larger particles out of your water system!

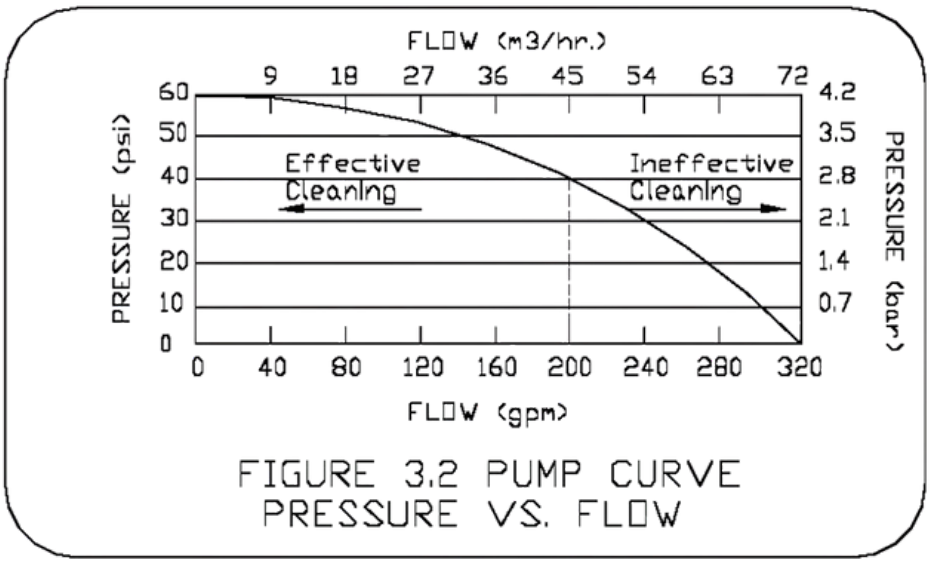


FIGURE 3.2 PUMP CURVE
PRESSURE VS. FLOW

SECTION IV: KEEPING YOUR CSF FILTER RUNNING SMOOTHLY

Let's talk about keeping your Tekleen CSF filter in top shape! Regular maintenance is key to ensuring long-lasting performance. This section outlines simple steps to care for your system.
Think of these steps as routine check-ups to ensure your filter continues to effectively remove those larger particles.

SECTION IV

4.1 Safe Shutdown Procedure

When it's time to shut down your filter for maintenance or any other reason, follow these steps to prevent any potential issues:

1. **Open the Bypass: I**f you have a bypass valve installed, open it. This allows water to flow through your system while the filter is offline.
2. **Close the outlet valve:** Completely close the outlet valve of the filter.
3. **Inlet valve:** Completely close the inlet valve of the filter. Now your filter is isolated, and the main water flow is going through the bypass.
4. **Release the Pressure:** Carefully relieve any remaining pressure inside the filter housing by gently detaching one of the 1/4" plastic tubes from any of its fittings.

4.2 Routine Check-Up: Inspecting for Smooth Operation

We recommend a visual check of the following components every three months to ensure everything is in good working order:

1. The Screen: Look for any signs of wear, tears, or excessive buildup.
2. The Flush Valve: Check for any leaks or signs of malfunction.
3. The Differential Pressure (DP) Gauge: Verify it's reading accurately.

How to Inspect Your CSF Filter: Before you begin, make sure to follow the shutdown procedures outlined in Section 4.1. Once the filter is safely shut down and depressurized:

1. **Power Off:** Switch the controller to the "Off" position and unplug it from the power source for safety.
2. **Disconnect the Valve:** Unplug the electrical connection to the flush valve from the controller.
3. **Detach the Tubing:** Disconnect all the 1/4" plastic tubes from the filter housing.
4. **Disconnect the Flush Line:** Unscrew and detach the flush line from the filter.
5. **Remove Cover:** Carefully remove the cover of the filter housing to access the internal components.

Now you can visually inspect the screen, flush valve, and other accessible parts.

4.3 Annual Check-Up: Essential Part Inspection

To ensure the long-term reliability of your Tekleen CSF filter, we recommend an annual inspection of the following parts for any signs of wear and tear. Replace them if necessary:

1. Cover Seal (the main gasket)
2. Screen
3. Air/Water Connection Fittings
4. Flush Valve

Regularly checking and replacing these components when needed will help keep your Tekleen CSF filter operating at peak performance for years to come!

SECTION V: REPLACEMENT PARTS AND ACCESSORIES

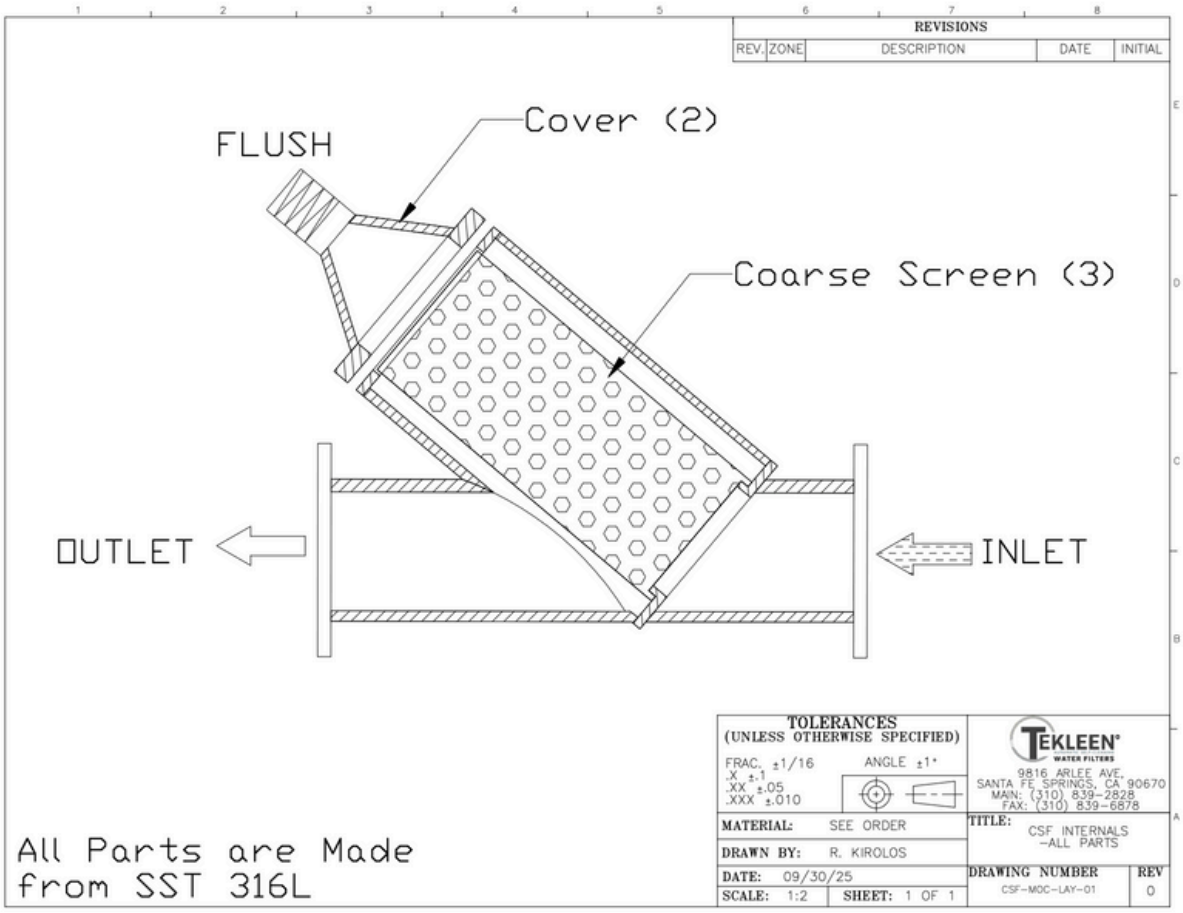
SECTION V

5.1 Recommended Spare Parts

To minimize downtime and ensure the continued efficient operation of your CSF water filter, we recommend keeping the following spare parts in stock:

1. Coarse Screen (3)
2. D/P Switch (34)
3. Controller Board

5.2 Spare Parts List



Appendix I: Special Installation Considerations

Automatic Bypass System

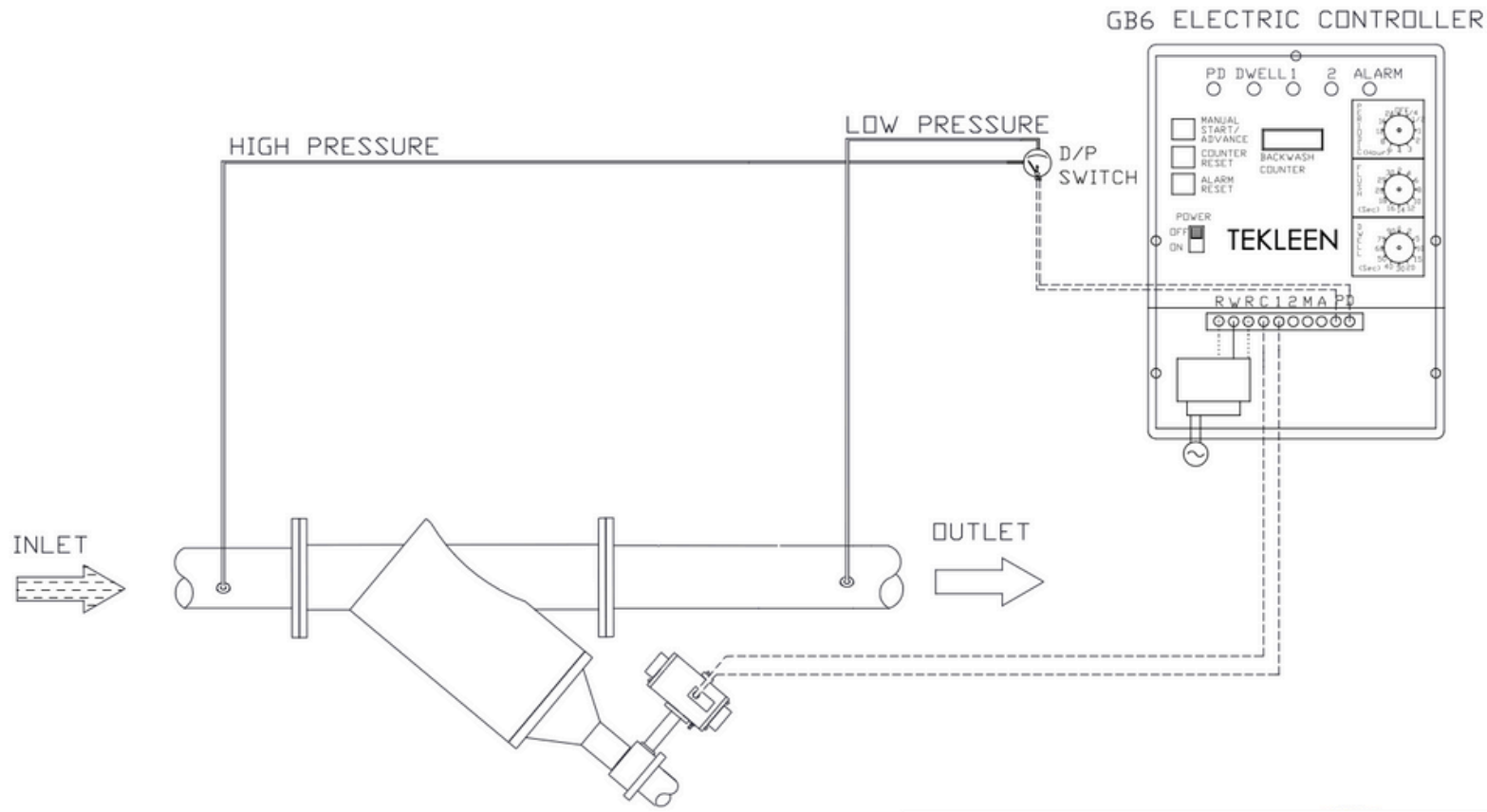
To install a bypass, you'll need a few extra shut-off valves (block valves). Simply install one on the inlet pipe before your CSF filter, another on the outlet pipe after the filter, and a third valve on a separate bypass pipe that connects the inlet and outlet lines.

By closing the inlet and outlet valves to your CSF filter and opening the bypass valve, you can redirect the water flow, ensuring a continuous supply while you perform any necessary maintenance on your filter unit.

Going Automatic (Optional):

For added convenience, you can automate your bypass system. If your bypass valves are equipped with actuators, they can be easily wired to your controller (refer to your controller's manual for specific wiring instructions). This allows the bypass to engage automatically when the filter is undergoing maintenance or a cleaning cycle, providing truly seamless operation.

REVISIONS				
REV.	ZONE	DESCRIPTION	DATE	INITIAL



TOLERANCES (UNLESS OTHERWISE SPECIFIED)			
FRAC. ±1/16 .X ±.1 .XX ±.05 .XXX ±.010	ANGLE ±1°	TEKLEEN® WATER FILTERS 9816 ARLEE AVE, SANTA FE SPRINGS, CA 90670 MAIN: (310) 839-2828 FAX: (310) 839-6878	
MATERIAL: SEE ORDER		TITLE: CSF FILTER W/ GB6 ELECTRIC CONTROLLER AND PNEUMATIC FLUSH VALVE	
DRAWN BY: R. KIROLOS			
DATE: 11/4/25		DRAWING NUMBER: CSF-GB6-PFV-LAY-01	REV: 0
SCALE: 1:2	SHEET: 1 OF 1		

WARRANTY

Automatic Filters, LLC (Tekleen) warrants water filters and controllers to be free from defects in materials and workmanship for one year from purchase date.

What's Covered

1. Filter housing, screen, valves, fittings, and internal components
2. Electronic controller defects affecting operation

What's NOT Covered

1. Normal wear and tear
2. Improper installation, misuse, or neglect
3. Lack of maintenance
4. Chemical damage
5. Labor or shipping costs
6. Property damage or loss of use
7. Products not purchased from authorized dealers

Warranty Claims

1. Call +1.310.839.2828 or email info@tekleen.com
2. Provide proof of purchase
3. Describe the problem
4. Follow troubleshooting if required
5. Get RMA number if needed
6. Ship product at your expense
7. We repair/replace and ship back at our expense

This warranty replaces all other warranties. We reserve the right to repair or replace defective products at our discretion.

Automatic Filters, LLC
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Thank you for choosing Tekleen®
We appreciate your trust in our products and team.

We hope your automatic filter system runs smoothly and exceeds your expectations. If you have any questions or need support, don't hesitate to reach out, we're here to help.