



SERFILCO® TITAN ALKALI CLEANER SYSTEMS

OPERATION AND
SERVICE GUIDE
O-3095B
JAN. 2005

MODELS	
CLN50	CLN100

Refer to Bulletin F-455.

! Titan Systems are not designed for use with flammable or explosive products.

HANDLING

A forklift should be used for handling Titan systems. If the entire system is on a base, use a forklift making sure the forks are placed under the base, not under the chamber. When a chamber is not attached to the base, use the ears/handles that are welded on top of the chamber for handling. **DO NOT USE THE COVER HOLD DOWN BRACKETS FOR THIS PURPOSE.** Place straps or chains of sufficient strength in each ear and use a forklift to lift the unit to prevent damage to the chamber. Use care to prevent the chamber from swaying.

PLUMBING

Locate the Titan cleaner system as close to the process tank as possible. The system's pump is not self-priming. A flooded suction is required to maintain proper prime for the system to function properly. Avoid the use of elbows on the suction supply line of the pump. The total flow rate will be decreased by 2.5 gallons per hour for every 90° elbow on the suction side. Do not place an elbow within 10 pipe diameters of the suction supply line of the unit. If elbow use is unavoidable, or to keep the suction intake piping run as short as possible, the pipe size for the suction intake will have to be increased to compensate for restriction and friction loss. Do not decrease the pipe size of the suction or the discharge. The discharge return line should come up and over the side of the tank and be positioned just above the solution level. Increasing the final 4 feet of the discharge pipe by 1 inch will minimize splashing during the blow-down cycle. It is recommended that all steel piping be used for plumbing the Titan filter to and from the process tank, backflush tank, and to waste treatment. Please feel free to contact SERFILCO'S technical support department to review your plumbing layout or other areas of concern prior to installation.

The installation of a _____ gallon, fresh water tank located near the filter unit is necessary for the backflush cycle.

ELECTRICAL

The 3-phase filter units are factory wired to your specific primary voltage. Install a three-phase line to the control panel and connect the power to the top of the main disconnect switch. The installation of an external fused disconnect switch near the unit is recommended. No further wiring is required. The pump and all valves are individually fused inside the control panel.

Rotation for the system's pump motor must be correct. A rotation arrow affixed to the motor indicates proper rotation. View the motor from the fan end and bump start the pump motor by pressing the center of the contactor located inside the control panel to verify correct rotation.

Should a cycle change be required, consult the factory. Any unauthorized change in the PLC program by other than SERFILCO service personnel will void the warranty.

AIR SUPPLY

A 1/2" air line, with a minimum of 50 PSI @ 30 CFM, needs to be installed and connected to the filter/regulator provided on the unit.

REGULATORS

The unit is equipped with a main filter, blow-down, and backflush regulator.

Adjustment - Pull adjustment knob upward to unlock. Turn clockwise to increase and counterclockwise to decrease outlet pressure setting. To reduce pressure, first reduce to a pressure less than desired, then increase to the desired outlet pressure. Push adjustment knob downward to re-lock.

Servicing

1. Keep accumulated water below baffle on the main filter/regulator by observing level through sight glass located on the filter housing. Open valve on bottom of housing to drain.
2. Replace filter element when dirty.

MEDIA

If the TITAN unit was shipped without the anthracite media already installed, the following procedure is for adding the anthracite.

1. Remove the cover of the filter chamber.
2. Add _____ lbs. (_____ cu.ft.) of coarse anthracite #2.
3. Add _____ lbs. (_____ cu.ft.) of fine anthracite #1.
4. Cover media with water and let stand a minimum of 24 hours. This will increase its density to allow proper backflushing of the system.
5. Replace and secure the filter chamber cover.

START-UP

Media will always contain fine particles and should be manually backflushed to waste treatment prior to initial start-up or when changing media.

1. Fill the backflush tank with fresh clean water.
2. If installed, open all manual valves.
3. Turn the air supply on and adjust main filter/regulator pressure to 50 PSI.
4. Adjust the blow-down regulator to 10 PSI.
5. Adjust the backflush regulator to 20 PSI.
6. Turn the main disconnect switch on.
7. Turn the power switch on.
8. Turn the mode switch to hand position.
9. The blow-down light will begin flashing. When this light becomes steady,

- a. Press the manual step button to bypass the blowdown cycle. The pump will come on for 15 seconds and automatically shut off. If this is not followed, the water in the filter tank will be blown back to your process tank.
 - b. Air agitation will come on for 60 seconds. Verify backflush regulator is adjusted to 20 PSI.
 - c. Air will shut off. After 30 seconds the backflush cycle will start. The pump will come on. To prevent the pump from running dry, you must manually time this for 3 minutes or until your backflush tank nears empty.
10. Turn the mode switch to off.
 11. The pump suction feed line must be entirely filled.
 12. Turn the mode switch to automatic. The filter light will appear and in a few seconds the pump will come on. If no flow appears on the flow meter after approximately 45 seconds, turn the mode switch to off for 1 minute. This will allow trapped air to escape the pump head. Repeat this procedure until full flow is established. As the contaminants build up in the filter chamber and slow the flow rate down to the low setting point, the unit will go into an automatic backflush cycle. The red light marked relay 1 on the flow meter will appear steady for 2 minutes before this takes place.

FLOW METER

The low flow set point has been pre-calibrated for typical operation at the factory. If the settings need to be adjusted, refer to the flow monitor instructions included in your booklet.

VALVES

CAUTION: Before any maintenance is performed and to prevent ignition of hazardous atmospheres and reduce the risk of electrical shock, never remove actuator covers while circuits are live.

If a fault alarm occurs from an out-of-position valve, consult factory for proper procedure to correct the problem. Valves are manufactured with factory lubricated grease in the gear case. In most cases this lubricant should never have to be replenished.

SHUTDOWN

Turn the mode switch to the off position. All of the electric valves will turn to their closed positions. After 10 seconds turn the power switch to off. It is suggested to turn all manual valves to their closed positions. This will assure no solution loss due to a siphoning action.

The Titan filter has a power failure circuit built in. If you experience a power failure, the filter unit will not restart by itself. To restart the system, turn the mode switch to the off position and then back to auto. Little or no maintenance is required on this filter unit. However, the unit should be periodically checked for plumbing leaks, air leaks, etc. the control panel door must be locked at all times.

MANUAL BACKFLUSHING PROCEDURE

CAUTION: Do not use the start-up procedure to perform a manual backflush. When performing a manual backflush, the pump will not shut off automatically. It is crucial to time step #5 to prevent the pump from running dry.

1. Turn the mode switch to the hand position.
2. The blowdown light will begin flashing. When this light shines continually, the unit will begin the blowdown, pushing the solution inside the chamber back to the process tank for 3 minutes.
3. The pump will come on for 15 seconds.
4. Air will come on for 1 minute and shut off.
5. After 30 seconds, the pump will come on. This must be manually timed for 3 minutes or until the backflush tank nears empty. Immediately turn the mode switch to off.
6. Turn the mode switch to the auto position to return to filtration.

MAINTENANCE

When and if cleaning of the tank is required it must be done in accordance with the regulation in force in the country and the product used.

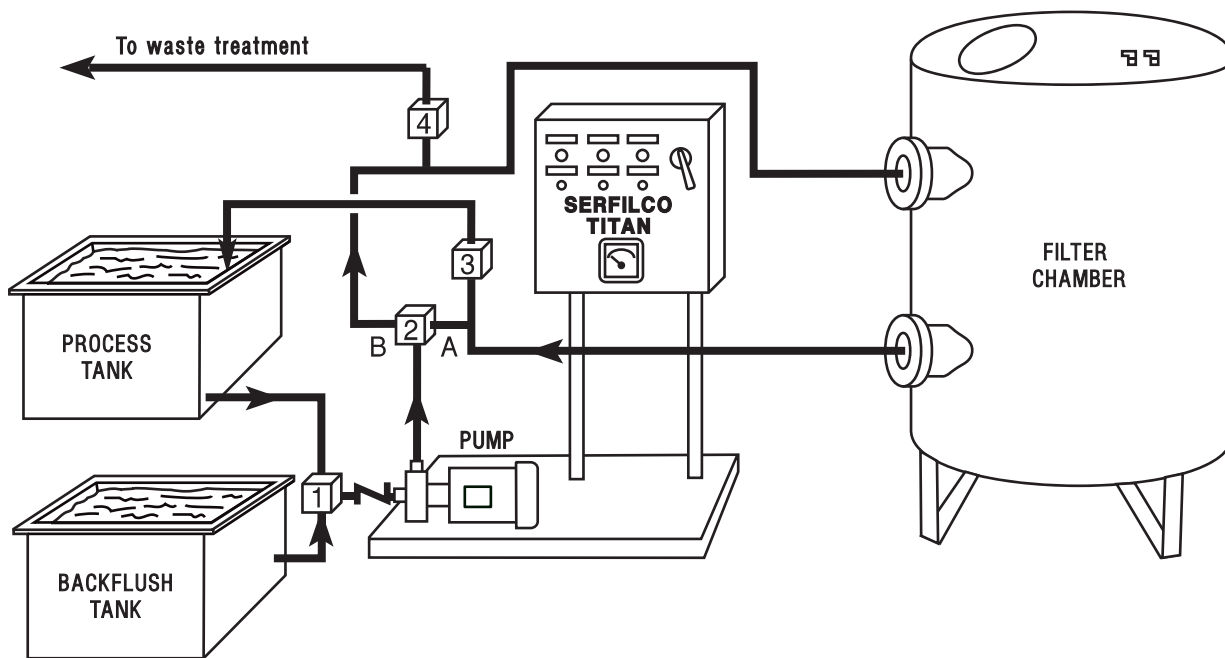
VALVE POSITIONS

PROCESS	PUMP	VALVE 1		VALVE 2		VALVE 3	VALVE 4	VALVE 5 - air	VALVE 6 - air
		A	B	A	B				
Filter	On	Closed	Open	Closed	Open	Open	Closed	Air on 3 minutes	Pump on 15 seconds Air on 1 minute Off 30 seconds Pump on 3 minutes
Blowdown	Off	Open	Closed	Open	Closed	Open	Closed		
Backflush	On	Open	Closed	Open	Closed	Closed	Open		

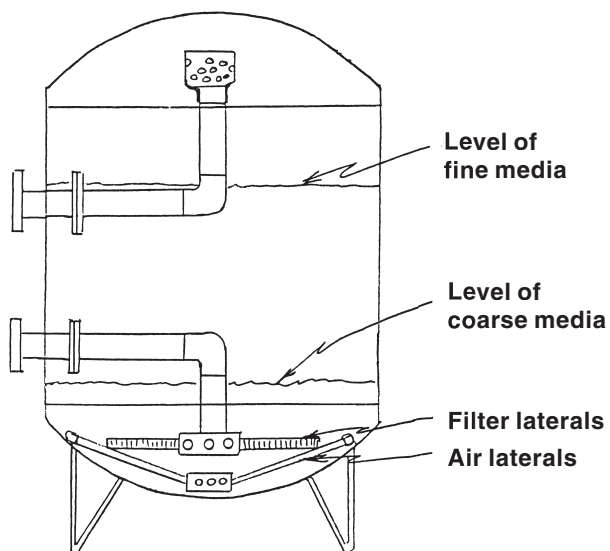
TROUBLESHOOTING

PROBLEM	SOLUTION
1. Pump will not turn on:	Check three phase fuses
2. Fault light comes on:	A valve is out of position which is the only cause for the fault alarm to come on. Consult factory.
3. Flow rate not returning to the original value after automatic backflush:	Media may be over contaminated. Proceed with a manual backflush.
4. Losing media:	Broken or cracked plumbing in chamber. Remove media and inspect. Repair as necessary.

FLOW DIAGRAM



N = Check valve



WARRANTY

SERFILCO warrants products* of its own manufacture will be free from defects in raw materials and manufacture under normal use and service for a period of not more than one year after date of shipment. **SERFILCO's** obligation under this warranty is limited to repair or replacement of its products which shall be returned to **SERFILCO's** headquarters, Northbrook, Illinois, U.S.A., with all transportation and associated charges prepaid, and which examination shall disclose to **SERFILCO's** satisfaction to have been thus defective at time of shipment, provided that **SERFILCO** had received immediate written notice upon discovery of such alleged defect and the alleged defective products shall have returned to **SERFILCO** not later than 30 days after **SERFILCO** has issued a Return Authorization Number. This warranty shall not apply to any of the products which shall have been used other than for their intended use, nor to any of the products, the composition of which shall have been changed in any way, nor to any of the products which have been subject to adverse storage conditions, misuse, negligence or accident.

SERFILCO shall not be held liable for damage or delays caused by defective raw materials and manufacture, nor shall **SERFILCO** be liable for consequential damages in cases of failure to meet the conditions of warranty. The full liability of **SERFILCO** under this clause is the repair or replacement of defective parts, at its discretion.

The customer is responsible for the proper installation and operation of the equipment. A factory representative is available at start-up at cost of travel expenses plus charge per diem. Consult sales department.

* Products such as filter cartridges do not normally last one year and may require frequent replacement. In addition, certain components such as mechanical seals, springs, "O"-rings, hose, ceramic liners, impeller magnet assemblies, diaphragms, etc. may be subject to wear and, therefore, wear should not be construed as evidence of the existence of a defect, and as such will not be honored in a warranty claim, nor should it be inferred that items such as these will last a year without occasional, or even frequent, replacement depending upon the severity of the application. Items not of **SERFILCO's** manufacture, such as motors, carry similar warranties by the manufacturer, and can often be serviced through local authorized repair center or handled through our office.

This express warranty is given in lieu of all other warranties. All other warranties and, specifically, the implied warranties of merchantability and fitness for particular purposes, are excluded. No person, agent or representative of **SERFILCO** is authorized to give any other warranties on **SERFILCO's** behalf or to assume for it any other liability in connection with any of the products.

WARNING — Any modification, alteration or other changes to **SERFILCO's** products will void any warranty and could cause damage or injury to the user of the products.

RETURN AUTHORIZATION POLICY

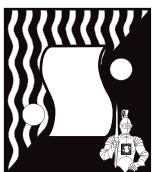
Inasmuch as **SERFILCO, Ltd.** produces products which are in industrial / commercial applications wherein these products come in intimate contact with chemicals, solvents, or other substances which may be classified as hazardous substances, and there exists federal, state and local legislation defining responsibilities and liabilities with regard to the generation, transportation, storage, and disposal of such substances, and that these same products may be returned to **SERFILCO** for service or other reasons after coming in contact with such substances, the following applies to return of used equipment.

USER RESPONSIBILITY

It is assumed that the user of **SERFILCO, Ltd.** products is in compliance with all aspects of legislation dealing with hazardous substances. To that end, the procedures for the legal transportation and disposal of such substances are the sole responsibility and liability of the user. Prior to any return of used merchandise the user shall:

1. Contact **SERFILCO, Ltd.** to obtain a Return Authorization Number and specific shipping instructions.
2. Thoroughly cleanse the merchandise to be returned so that no detectable residue of any substances remains on any surface.
3. Prepare a legal shipping container suitable for the return of this merchandise to **SERFILCO, Ltd.** The shipping container must have the Return Authorization Number clearly and legibly imprinted above the shipping label.
4. The user is responsible for shipping the merchandise to **SERFILCO, Ltd.** and for the freight charges in both directions.
5. PLEASE NOTE: In the presence of the delivering carrier, **SERFILCO** personnel will open and inspect all returned merchandise, and will refuse and return to shipper all merchandise not meeting these conditions.
6. Assume responsibility for the final disposition of any used merchandise i.e., reuse of a repaired or otherwise reusable product, or the legal disposal of a defective or otherwise unusable product.
7. Used filter media, carbon or ion-exchange resins may not be returned to **SERFILCO, Ltd.** and will be refused.
8. Samples for test will not be accepted. **SERFILCO** offers rental and test equipment for field testing, subject to the above conditions.

In the event that used merchandise is returned to **SERFILCO, Ltd.** without strict compliance to this policy, **SERFILCO** reserves the right to refuse receipt of such products. **SERFILCO** will direct that the carrier involved return same to sender in accordance with the above policy and procedure.



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TITAN CLEANER

VALVE POSITIONS								SOLENOID VALVE 5 - air	SOLENOID VALVE 6 - air
PROCESS	PUMP	VALVE 1		VALVE 2		VALVE 3	VALVE 4		
		A	B	A	B				
Filter	On	Closed	Open	Open	Closed	Open	Closed	Pump On 3 minutes	Pump on 15 secs. Air on 1 minute Off 30 secs Pump on 3 mins.
Blowdown	Off	Open	Closed	Open	Open	Closed	Closed		
Backflush	On	Open	Closed	Closed	Open	Closed	Open		

