

# SMF SELECTO MODULAR FILTER NANO-FILTRATION™ INSTALLATION & OPERATIONS MANUAL Water Filtration Systems for the Food Service Industry



# selecto

Proud Member of:



DO NOT USE with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system. Systems certified for cyst reduction may be used on disinfected waters that may contain filterable cysts.

# 1. Installation Precautions

The **Selecto SMF Series** systems are carefully designed to reduce sediment, dirt, and improve taste. These systems will also prevent scaling and corrosion in your equipment. Follow these instructions with care and we are certain that you will be satisfied with the unit and benefit from its low-cost operations.

## What to know prior to Installation

- ⚠ The **Selecto Water** Treatment systems are not to be used where water is microbiologically unsafe or with water of unknown quality without adequate disinfection before or after unit.
- ⚠ Do not install where line pressure is outside of 40 - 125 psi, or where temperature is lower than 40°F or exceeds 100°F.
- ⚠ Installation must comply with any existing state or local plumbing codes.
- ⚠ The unit(s) must be protected against freezing. Failure to do so may result in cracking of the filter and water leakage.
- ⚠ The **Selecto Water** Treatment system is designed for cold water line use only. Passing hot water through the system may seriously damage filter housing.
- ⚠ Filter must be in contact with water at all times.
- ⚠ Recommended pH range is 6 to 8.5.
- ⚠ Recommended inlet pressure 60 psi.
- ⚠ Tools needed: drill, screwdriver, tube cutters (if hard plumbing: lead free solder, heating device, and flux)

# 2. Installation

## Unpacking

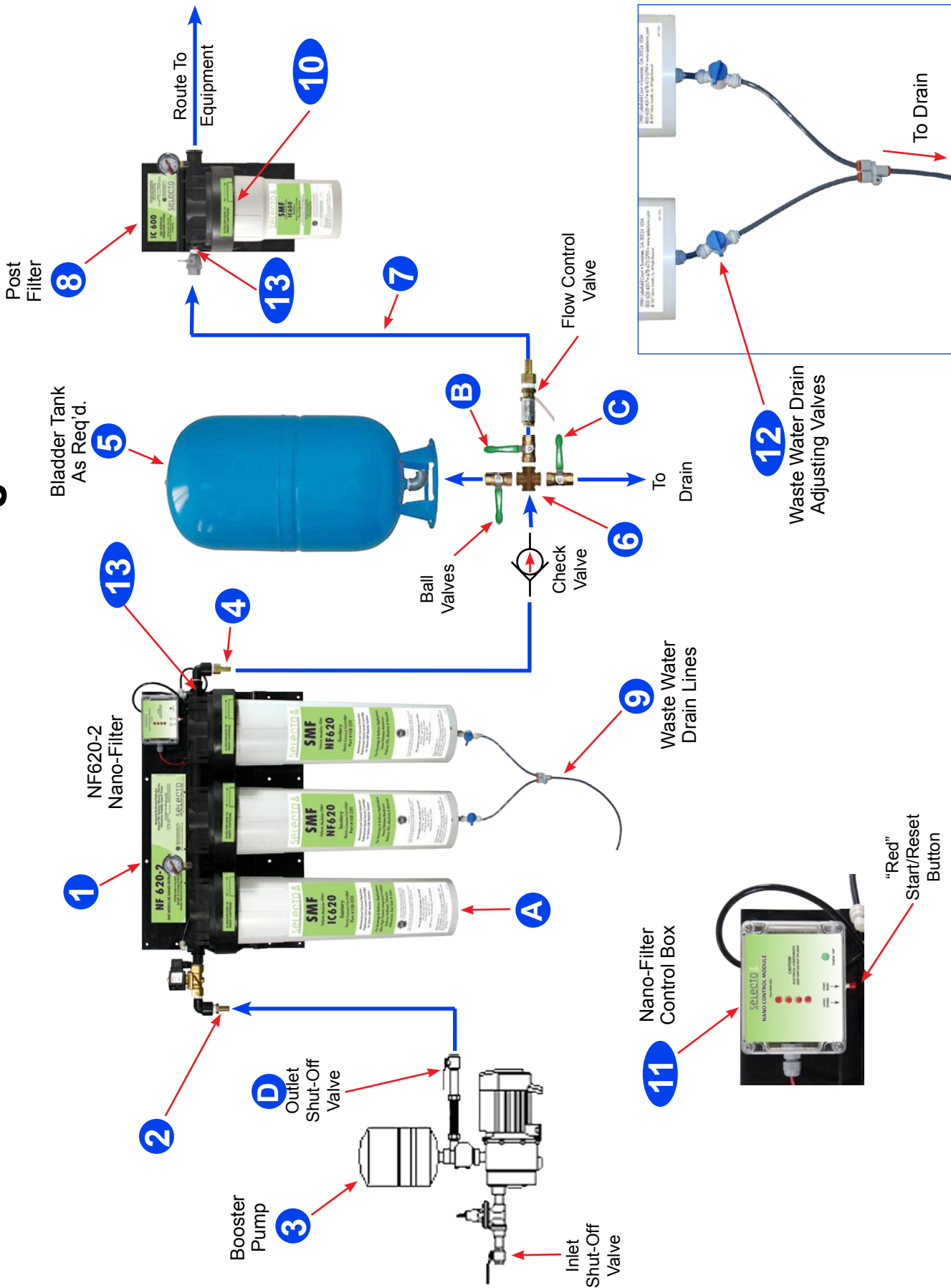
- ⚠ Remove filter system from packaging and inspect for shipping damage. Notify shipping company immediately if damaged.
- ⚠ Carefully lift filter system, using proper lifting techniques (use your legs, not your back) from the box to inspect thoroughly.
- ⚠ Dispose of packing material, so as not to create a tripping hazard during installation.

## Positioning water filter

- ⚠ The water filter should be mounted upright on a horizontal surface without obstructions.
- ⚠ Locate a position that is close to the equipment it will be supplying water to, where it is out of the way of possible damage from day-to-day operations, and where it is accessible for cartridge changeout when needed. There should be a 6" minimum bottom clearance.

## 2. Installation (Continued)

### SMF Nano-Filtration Installation Diagram



## 2. Installation (Continued)

**Note: Be sure to fully read and understand all instructions prior to beginning the installation!**

For ease of maintenance, and in case of system failure, an optional system bypass may be installed.

### Mounting

1. Measure backplate of filter system and mark hole locations on wall (**See Item 1**). Minimum wall space required for this system is 36" Wide X 36" Height X 12" Depth.

a. Insure marks are level, then drill holes for anchors (if needed). Anchors must be properly matched, to allow for wet weight of filter system.

b. Secure SMF water filter system to wall.

### Water Connections

2. Make sure that there is a water supply close by capable of delivering a constant 5 gpm flow rate. If a constant 5 gpm is not available, installation of a new dedicated line will be required. Use appropriately sized inlet fittings and tubing to allow for a flow rate of 5 Gallons Per Minute (gpm) (**See Item 2**).

a. Attach cold water supply source to inlet of desired booster pump. Be sure to size correct booster pump with proper flow for your required application. Note: A booster pump is not required when a constant minimum water pressure of 80 psi is available. Installation of a shut-off valve prior to the booster pump, and after the booster pump is recommended for shutting off the water during cartridge changes and/or servicing. (**See Item 3**).

b. Connect Nano-Filter inlet to cold water supply from booster pump. Use approved flexible beverage tubing where possible with correct sized tube clamps. If hard plumbing is necessary then use only lead free solder and protect filter housing from excessive heat. **Do not solder within 12" of plastic parts!**

3. Connect outlet of Nano-Filter (**See Item 4**) to a suitably sized bladder type storage tank, (**See Item 5**), to suit your required application using a "Cross" type fitting, 3 ball valves, check valve & Flow Control Valve with no less than 1/2" ID tubing. (**See Item 6**). Properly wire Flow Control to Nano Control Module.

4. Connect outlet of storage tank, (**See Item 7**), to post filter (**See Item 8**) using no less than 1/2" ID tubing.

5. Connect outlet of post filter to all specified equipment using no less than 1/2" ID tubing. It is only permissible to decrease line size when multiple lines are being used.\*

\* Teeing the tubing should be done appropriately, for example 1/2" x 1/2" x 1/2". This is only to be done at equipment location if line is to be used for other equipment.

6. Route the waste water drain lines (**See Item 9**) to a suitable drain. Make sure to securely mount the drain lines so that they are at least 2" above the drain to act as a vacuum break.

### Initializing the Water Filtration System

7. Check to be sure that all cartridges are properly installed. Do this by turning the cartridge counter-clockwise, when viewed from the bottom of the cartridge, and then back clockwise until a positive stop is felt (**See Item 10**). Also see "Cartridge Changing Instructions" (**Page 6**) and "Troubleshooting Guide" (**Page 7**).

8. Open Inlet & Outlet shut-off valves at the booster pump and before the bladder tank. Keep the inlet shut-off valve on the post filter closed at this time. Open shut-off valve on the bladder tank to the drain.

9. Plug in the booster pump and the Nano-Filter controller (**See Item 11**) to an acceptable 115VAC, 15 AMP outlet. The "red" LED's on the control module will flash sequentially, verifying an internal diagnostic check, and then go "off".

10. Press and hold the "red" start button on the controller for 20 seconds. The inlet solenoid valve will open allowing water to begin to flow through the system. The 1st and 4th red LED's will be "On", indicating that the system is producing water. All 4 red LED's will be "On" when there is water being consumed at the same time that water is being produced.

11. Allow the filtered water to flow to the drain through the bladder tank drain for 10 minutes. This will rinse the nano membranes of any storage solution. Then close the drain from the bladder tank.

## 2. Installation (Continued)

### Initializing the Water Filtration System (Continued)

**12.** Fully open both of the waste water drain valves (See Item **12**) and allow to flow to the drain for approximately 10 minutes to properly flush the nano membranes. Then fully close both valves.

To properly adjust the system waste water allowed to flow to the drain, just slightly open one effluent drain adjusting valve until a trickle flows out of the drain tube. Continue to slowly open this valve until the flow to the drain is approximately 1 quart (32 oz.) per minute. Repeat this process on the second waste water drain adjusting valve until the total combined flow to the drain is approximately 2 quarts (64 oz.) per minute. The waste water drain valves are now properly adjusted. When the system is in the idle mode (not producing water), the drain lines will stop flowing to the drain.

**13.** Close the drain shut-off valve on the bladder tank, allowing the Nano-Filter system to continue making product water until the bladder tank is full. When the tank is full, the system will automatically shut down, ceasing production of product and waste water.

**14.** Open the shut-off valve to the post filter, allowing water to flow to your equipment. This drawing of product water will close the contacts in the flow switch circuit, telling the nano-filter controller to start making water. The “red” LED’s will illuminate, designating which valve is energized and the status of the flow and differential pressure switches.

**15.** The system is now operational. Go back and check all connections for possible leaks and repair, as required.

## 3. Maintenance

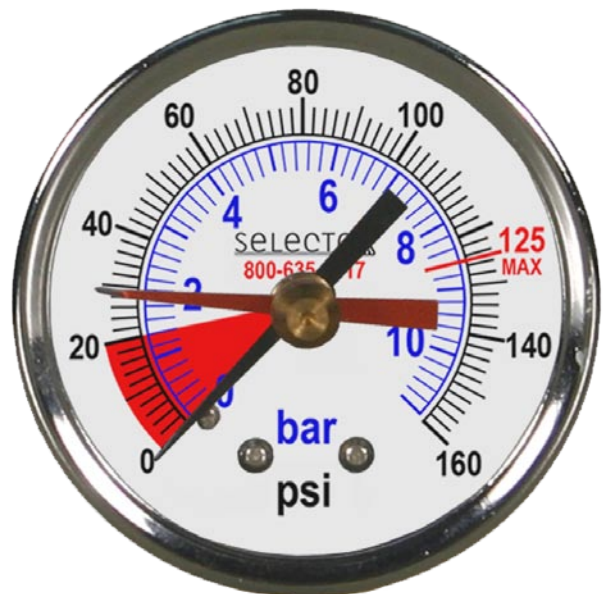
### Cartridge Replacement Schedule

**1.** Change the “IC” filter cartridges yearly, when the capacity of the filter cartridges has been exceeded, or when the line pressure downstream of the post filter housing drops to 30 psi or below during system operation, whichever occurs first. Occasional dips below 30 psi and back are normal. Under normal operating conditions, the membrane cartridges should require no changing and last from 3 - 5 years. When pressure and flow is severely diminished, even after changing the “IC” cartridges, then it is time to replace the membrane cartridges.

**2.** See the system backplate labels for correct ordering information of the proper cartridges.

**3.** For proper cartridge changing procedures, see “Cartridge Changing Instructions” on Page 6.

**4.** For proper membrane maintenance & de-scaling, see “Membrane De-Scaling Procedures” on Page 7.



# 4. Cartridge Changing Instructions

## Step #1

### Refer to Figure #1

- a. Unplug the booster pump and Nano control module from the power outlets.
- b. Shut off the inlet valves before the booster pump and before the post filter.
- c. Press the “Red” pressure relief buttons (**See Items 13**) located on the right hand end of the Nano-Filter and on the left hand end of the post filter until no more water comes out.
- d. If changing the Nano-Membrane cartridges, be sure to remove the waste water drain lines first by pushing the round collar around the tubing “In”, and pulling the tubing “Out”.
- e. Grasp filter cartridge, turn counter-clockwise 1/8 turn (when viewed from bottom), and pull downward about 1 1/2” to remove the filter cartridge. Properly dispose of the old cartridge.
- f. Repeat Steps “c” & “e” as required to remove all cartridges that you want to change.



Figure #1

## Step #2

### Refer to Figure #2

- a. Remove and discard the “Red” sanitary cap from the top of the new filter cartridge.
- b. Be sure to apply sufficient lubrication (supplied) to the O-Rings.



Figure #2

- c. Align ear on cartridge with notch on filter head per alignment label. Push cartridge upwards to insert. Be sure to push the cartridge all of the way in! Turn the cartridge clockwise (when viewed from the bottom), until a definite stop is felt and the cartridge is sealed. Hand tight is sufficient.
- d. Repeat Steps A through C as required to replace all desired cartridges.
- e. Turn the inlet valve “On” prior to the booster Pump only! **Do Not** run the booster pump without water!
- f. Re-plug in the booster pump and Nano control module.
- g. Re-initialize the system by following steps 9 through 11 of the Initializing Instructions on page 4.
- h. Close the drain at the bladder tank and turn the inlet valve “On” prior to the post filter allowing product water to flow to equipment. Press the “Red” pressure relief on the post filter to relieve any air in the system until water comes out. The system is now operational.
- i. It is recommended that the “IC” cartridges be changed at least yearly, when pressure drops significantly, or when bad tastes and/or odors return. See “Maintenance” on page 5 for complete details.
- j. After changing the Nano-Membrane cartridges, be sure to adjust the waste water drain valves by following the directions in “Step 12” on Page 5.

## 5. Nano-Membrane De-Scaling Procedure

- a. Unplug the booster pump and Nano control module from the power outlets.
- b. Shut off the outlet valves after the booster pump **D** and after the bladder tank **B**.
- c. Press the “Red” pressure relief button on Nano-Filter (**See Item 13**) located on the right hand end of the System until no more water comes out.
- d. Open the bladder tank drain valve **C** and completely drain the bladder tank.
- e. Grasp the furthest left filter cartridge (SMF IC620) **A**, turn counter-clockwise 1/8 turn (when viewed from bottom), and pull downward about 1 1/2” to remove the filter cartridge. Properly dispose of the old cartridge.
- f. Install 10” Nano-Membrane De-Scaling Cartridge by following the Cartridge Installation Procedures outlined in “Step 2”, “a” thru “c” on Page 6.
- g. Open the outlet shut-off valve at the booster pump & re-plug in the booster pump and Nano control module.
- h. Re-initialize the system by following steps 9 and 10 of the Initializing Instructions on page 4.  
**CAUTION: DO NOT OPEN THE VALVE **B** LOCATED AFTER THE BLADDER TANK!**
- i. Close the drain at the bladder tank **C** and allow the Nano-Filter to run de-scaling solution through it until the bladder tank is full. When the tank is full, the system will automatically shut down, ceasing production of product and waste water. This will properly sanitize the bladder tank while at the same time de-scaling the Nano-Membranes. Open the bladder tank drain **C** and fully open the “Waste Water Drain Lines” **9**. Continue to allow de-scaling solution to flow to the drain for 20 minutes.
- j. Close the drain at the bladder tank **C**.
- k. Unplug the booster pump and Nano control module from the power outlets and shut off the outlet valve after the booster pump **D**.
- l. Press the “Red” pressure relief button on Nano-Filter (**See Item 13**) located on the right hand end of the System until no more water comes out.
- m. Follow the “Cartridge Changing Instructions” on Page 6 to properly remove the De-Scaling Cartridge and discard, and re-install a new or existing SMF IC620 cartridge.
- n. Repeat steps “g” and “h” above.
- o. Allow the Nano-Filter to run filtered water through it until the bladder tank is full. When the tank is full, the system will automatically shut down, ceasing production of product and waste water. Open the bladder tank drain and and fully drain. This will properly rinse any residual de-scaling solution from the bladder tank. Close the drain and repeat the rinsing function 3 times.
- p. Close bladder tank drain valve **C**, open valve **B** located after the bladder tank, and turn the inlet valve “On” prior to the post filter allowing product water to flow to equipment. Press the “Red” pressure relief on the post filter to relieve any air in the system until water comes out.
- q. Properly adjust the “Waste Water Drain Lines” following “Step 12” on Page 5. The system is now operational.

# 6. Troubleshooting Guide

## Leaks

All SMF Series Modular Filtration Systems are factory pressure tested. It is normal to experience leaks of a few drops of water at the various O-Ring sealed junction points at initial Start-Up only. This will subside after a couple of minutes as soon as the O-Rings become under pressure and seat properly. For any leaks lasting longer than this, or those that are more than a few drops, please see the troubleshooting points below. **Note:** The inlet valves before the booster pump and before the post filter must be turned "OFF" and the "Red pressure relief buttons (**See Items 13**) located on the right hand end of the Nano-Filter and on the left hand end of the post filter must be pressed until no more water comes out before attempting to repair any leakage problems.

### Leaks at Threaded Connection Points

This type of leak should be repaired by removing the fitting and applying additional thread sealant compound. Do not attempt to repair by tightening the fitting more! Overtightening fittings into plastic parts may cause the plastic to crack. This type of damage is considered abuse, and not covered by the warranty!

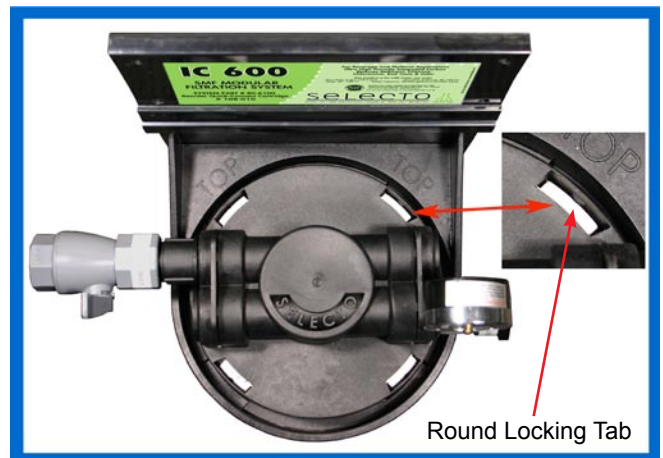
### Leaks at Junction of Modular Fittings to Filter Head

If leaking persists at the junction points, remove the retainer clip carefully by inserting a screwdriver or other object into the hole and gently prying "UP" to remove. Gently remove the leaking fitting by "pulling straight out". Apply additional lubricant (supplied) to the O-ring and re-insert the fitting by gently "pushing all the way in" until the shoulder on the fitting contacts the filter head. Examine the retaining clip for any cracks from removal and re-insert by "pushing straight down" until it is all the way in. If retaining clip is cracked or stretched in any way, discard it and use a new one (supplied). If the above procedure does not cure the leak, repeat the processes above, replacing the O-Ring (supplied). See diagram below.



### Leaks Between Cartridge and Filter Head

While looking at the top of the filter system, grasp the cartridge and turn slightly counter-clockwise, when viewed from bottom and then back clockwise, making sure that the ears on the cartridge are fully engaged into the filter head. The round locking tab in the filter head will be engaged into the half-round recess in the cartridge ear. See diagram below.



If leakage persists, remove cartridge by following the procedures outlined in "Step 1" of the "Cartridge Changing Instructions" on Page 6. Inspect the O-Ring on the top of the cartridge for damage. Replace with a new O-Ring (supplied) and lubricate well with lubricant supplied. Replace the cartridge by following the procedures outlined in "Step 2" of the "Cartridge Changing Instructions" on Page 6. See diagram below.



## 6. Troubleshooting Guide (Continued)

### Bypassing the Filter System

The purpose of the Selecto SMF Modular Filter System is to provide consistent safe, clean ingredient water. Bypassing the system is not recommended. However, in the case of system malfunction or a damaged or clogged filter cartridge, it may sometimes become necessary to bypass the system. This may be accomplished 2 different ways. If a hard plumbed bypass was initially installed, you may operate the appropriate valves to completely bypass the system. Or, individual cartridges may be bypassed by removing the filter cartridge and following the procedures outlined in “Step 1” of the “Cartridge Changing Instructions” on Page 6, and installing the “Bypass Plug” in its place. When installing the “Bypass Plug”, it is necessary to properly lubricate the O-Ring using the lubricant provided. Install the plug the same as a replacement cartridge by following the procedures outlined in “Step 2” of the “Cartridge Changing Instructions” on Page 6. Be certain to properly engage the “Ears” on the “Bypass Plug” fully into the round locking tab in the filter head as outlined on the previous page. See the diagram at right.



### Troubleshooting No Water Coming Out of System

- A. Check the complete water circuit to be sure all ball valves are in the “Open” position, press the “Red” pressure relief buttons (**See Items 13**) located on the right hand end of the Nano-Filter and on the left hand end of the post filter several times to see if any water is flowing out. Check lines running to equipment for pinched conditions or failure.
- B. Check the “Drain” shut-off valve at the bottom of bladder tank to be sure that it is closed, and not allowing all of the water to run into the drain.
- C. Check whether the solenoid valve at the left end of the Nano-Filter is turned on. You will see (1) red LED on the Control Module turn on and you should hear a “click” sound at the very beginning when the system is turned on.
- D. If the LED in Step “C” is functioning, but water still does not come out from the pressure relief buttons as outlined in Step “A”, it indicates that the solenoid may not be getting energized or the valve is bad. Therefore, the valve needs to be repaired or replaced.
- E. If the Control Module does not have any “Red” LED’s on, press the “Red” reset button once. If there still are no LED’s on, check to make sure that the Control Module 24VDC transformer is plugged into the wall and that the transformer lead is properly plugged into the Control Module. Also, check to be sure that your wall outlet has power, and that a circuit breaker has not “blown”.
- F. If the power supply is O.K. and the Control Module is not responding at all, then the Control Module may be defective and need to be replaced.
- G. If all of the above checks fail to alleviate the problem:  
Please call our Customer Service Hot Line at (800) 475-4017, 8:00 am - 6:00 pm EST

## 7. Specifications

### SMF NF620-2

System Part: #83-6202  
Replacement "IC" Cartridge: #108-020  
Replacement Membrane Cartridge: #108-220  
Rated Capacity (Gallons): Chlorine : 100,000  
Chloramine : 30,000  
Reduction of Hardness minerals by 75%  
Sulfate Reduction from 200 ppm down to 30 ppm  
Flow Rate: 2 gpm  
Min./Max. Pressure: 40– 125 psi  
Min./Max. Temp.: 40°– 100° F  
Inlet/Outlet Size: 1/2" Barb Standard  
Shipping Weight: 43 Lbs.  
Dimensions (W/D/H): 34/10/36"

#### SPECIFIED TO:

- Provide Safe, Clean Ingredient Water on Demand
- Reduce Bacteria, Cysts, Viruses, Organic Carbon, Tannins, Calcium, Alkalinity, Trihalomethanes, Sulfates, Scale, Bad Tastes and Odors.
- Increase Carbonation

**NOTE: System is intended for indoor use only! Do not splash any electrical components or Control Module!**

### SMF IC600

System Part: #80-6100  
Replacement Cartridge: #108-010  
Rated Capacity (Gallons) @ 5 gpm: Chlorine : 50,000  
Chloramine: 15,000  
Flow Rate: 5 gpm  
Min./Max. Pressure: 40– 125 psi  
Min./Max. Temp.: 40°– 100° F  
Inlet/Outlet Size: 1/2" Barb Standard  
Shipping Weight: 16 Lbs.  
Dimensions (W/D/H): 14/9/19"

#### SPECIFIED TO:

- Improve Taste of Fountain Beverages
- Provide Safe, Clean Ingredient Water
- Reduce Chlorine, Chloramine, Bad Tastes and Odors, Total Organic Compounds, Tannins and Trihalomethanes
- Increase Fountain Sales
- Increase Carbonation

## 8. Warranty

### CLAIMS POLICY

All claims, whether concealed or not, are the responsibility of the account. Any carton damage or shortages should be noted on the bill of lading at the time or receipt of the shipment, in accordance with I.C.C. Regulations. If the concealed damage or loss is noted by the account while unpacking the shipment, the carrier should be notified immediately, per I.C.C. Regulations.

**SELECTO** must be notified, in writing, including a copy of the carrier's claim form, of any damage or loss claims within 45 days. Failure to so notify **SELECTO** releases **SELECTO** from any liability.

### WARRANTY POLICY

**SELECTO** warrants the Product to be free of defects in material and workmanship. Any defects will be remedied by **SELECTO** in the manner provided below.

The Plastic Housing(s) on the Product carry a five (5) year unconditional warranty for parts and labor, except for modular changes and abuse. This Warranty together with any and all warranties implied by law, shall be limited to a duration of one (1) year on all other parts and components.

This Warranty does not apply to defects or damage due to abuse, neglect, misuse, accident, alteration, freezing, fire or damage not caused by **SELECTO**. In no event will **SELECTO** be liable for incidental or consequential damages from a defective unit or improper installation. **CHECK ALL CONNECTIONS FOR LEAKS BEFORE OPERATING THE UNIT.**

**SELECTO's** responsibility under this warranty shall be to repair, at its expense, any Product that is actually defective, or otherwise in violation of this Warranty. If **SELECTO** for any reason cannot repair a Product covered hereby within three (3) weeks after receipt of the defective unit, then **SELECTO's** responsibility shall be at its option, either to replace the defective Product with a comparable new unit at no charge, or to refund the full purchase price. **SELECTO's** obligations of repair, replacement, or refund are conditional upon return of the defective Product to **SELECTO**. If any Product covered hereby is actually defective within the terms of this warranty, then **SELECTO** will bear all the reasonable and proper shipping or mailing charges incurred in the return of the Product as set forth herein. If the Product proves not to be defective within the terms of this Warranty, then all costs and expenses in connection with processing of the consumer's claim hereunder shall be borne by the consumer.

**THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS, WHICH VARY FROM STATE TO STATE. WARRANTY IS VALID ONLY IN THE CONTINENTAL UNITED STATES.**

### RETURN POLICY

All returns, whether defective or not, must be pre-approved by **SELECTO**, and accompanied by a pre-approved valid, return goods number clearly marked on the outside of the shipping container. All returned goods must be shipped prepaid to **SELECTO** from point of origin. Returns not shipped prepaid will be refused.

0 - 30 Days: 15% restocking fee  
61 - 90 Days: 35% restocking fee

31 - 60 Days: 25% restocking fee  
After 90 Days No Returns Accepted



3980 Lakefield Court, Suwanee, GA 30024 USA  
Fax: 678.475.1595 www.selectoinc.com

Phone: 678.475.0799 800.635.4017