SpectraPure®
INNOVATORS IN WATER TECHNOLOGY

CSP Manual Flush

Reverse Osmosis
Water Purification Systems

Single (90 GPD) and Dual (180 GPD) Membrane Models

CSP-90-MF CSP-180-MF

INSTALLATION AND OPERATING MANUAL

WARNING

Please read carefully before proceeding with installation. Failure to follow any attached instructions or operating parameters may lead to the product's failure and possible damage to property.

2019-09-30

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This CSP RO System comes complete with:

- High-rejection SpectraPure® advanced thin-film membrane (2 membranes in 180GPD system)
- 2:1 waste-to-product ratio produces 50% less waste water (3:1 for hard water areas)
- Long-life high-efficiency 0.5 micron Sediment prefilter
- High-capacity 0.5 micron Carbon Block prefilter eliminates chlorine, herbicides and other organic pollutants
- Dual-probe TDS Meter to monitor membrane performance
- Manual Membrane Flush Valve for longer membrane life
- Automatic ShutOff Valve saves water
- Inline feedwater Ball Valve for manual system shutoff
- Float Valve for filling a reservoir
- Pre-installed pressure gauge indicates when to change prefilters
- Durable, no rust mounting bracket & clear filter housings
- 6-foot feed tubing, product and waste tubing included
- Housing wrench for easy filter removal
- Garden hose adapter for feed water hookup
- One year warranty

Thank You for your purchase of a SpectraPure® System. With proper installation and maintenance, this system will provide you with high quality water for years to come. All SpectraPure® products are rigorously tested by us for safety and reliability. However, SpectraPure® Inc. Assumes No Responsibility for water damage due to leaks. It is the user's responsibility to determine that the system is leak-free. If you have any questions or concerns, please contact our customer service department at 1.800.685.2783.

SYSTEM SPECIFICATIONS:

Sediment Prefilter	0.5 micron MicroTec™ sediment prefilter (SF-MT-0.5-10)
Carbon Filter	0.5 micron carbon block prefilter (CF-0.5-10)
RO Membrane Type	Thin-Film Composite (TFC) (MEM-0090)
Rejection Rate	98% average
Input Water Pressure	60 psi (4.15 bar) line pressure*
Input Water Temp	77°F (25°C)
Recovery Rate	33% (i.e. 33% of the water will be collected as pure water)

Dimensions:

CSP-90-MF	14" W x 16" H x 7" D (One Membrane)
CSP-180-MF	14" W x 18" H x 7" D (Two Membranes)

Nominal Membrane Flow Rates @ 60 psi, 77° F & 250 ppm TDS :

GPD	Product Water Flow Rate	Concentrate Flow Rate (2:1)
90	237 ml/min	473 ml/min
180	473 ml/min	946 ml/min

Permeate flow and TDS rejection is based on the following test conditions: 250 ppm tap water, 77° F (25° C), 33% recovery and 60 psi.

Higher TDS, harder tap water, higher temperature, greater recovery rate, or lower operating pressure may contribute to reduced permeate flow and/or lower TDS rejection.

Reverse Osmosis Operating Limits:

Operating Pressure*	40 – 80 psi (2.75 – 5.5 bar)
pH Range	2 – 10
Maximum Temperature	113° F (45° C)
Maximum Turbidity	1.0 NTU
Maximum Silt Density Index	5.0 (based on 15 min. test time)
Free Chlorine Tolerance	less than 0.1 ppm
Maximum Iron	less than 0.1 ppm
Maximum Manganese	less than 0.1 ppm
Maximum Hydrogen Sulfide	0 ppm
Langelier Saturation Index	LSI must be negative

*Operating pressure less than 40 psi may require a booster pump:
Operating pressure greater than 80 psi may require a pressure regulator.

GENERAL SYSTEM DESCRIPTION:

This SpectraPure® RO System will provide you with a continuous supply of sparkling clear water. The reliability of the SpectraPure® Water Treatment System is greatly improved over other systems. Costly maintenance can be avoided, providing high quality water at your fingertips.

The incoming feed water from a cold water source is directed through BLACK tubing with an inline ball valve and is first passed through a sediment prefilter. This filter is used to remove excessive turbidity, sand, dust, silt, etc., that would otherwise cause the carbon filter to plug up. The next stage of filtration is the carbon block prefilter. This filter is used to remove organics and chlorine from the feed water that can damage the membrane. The next stage of the system is the RO membrane.

Household water pressure is used to force tap water through the semipermeable RO membrane. The membrane only allows the purest of water molecules to pass through it while over 98% of most inorganic salts, all microorganisms, and almost all high molecular weight organics in the water are rejected by the membrane and sent down the drain.

A dual-probe TDS meter is provided to monitor the condition of the RO membrane. The "IN" probe monitors the tap water and the "OUT" probe monitors the RO water.

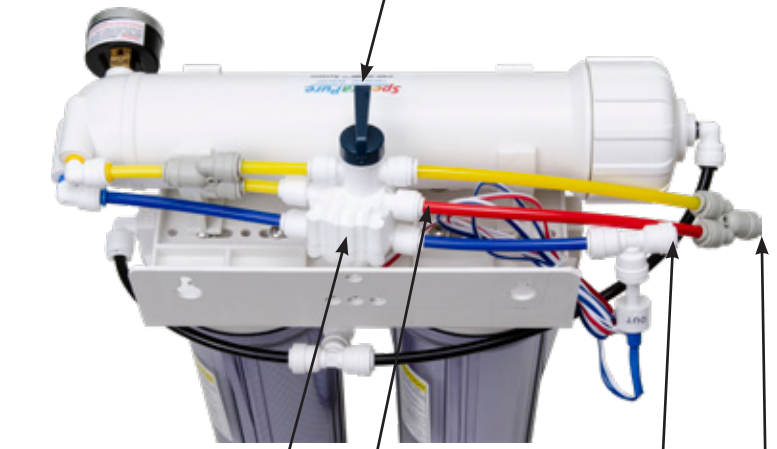
A pressure-operated ShutOff Valve and a Float Valve are provided for convenient filling of a storage reservoir.

A Manual Flush Valve may be used to periodically rinse the accumulated impurities and concentrated waste water from the surface of the RO membrane to help increase the life of the membrane.

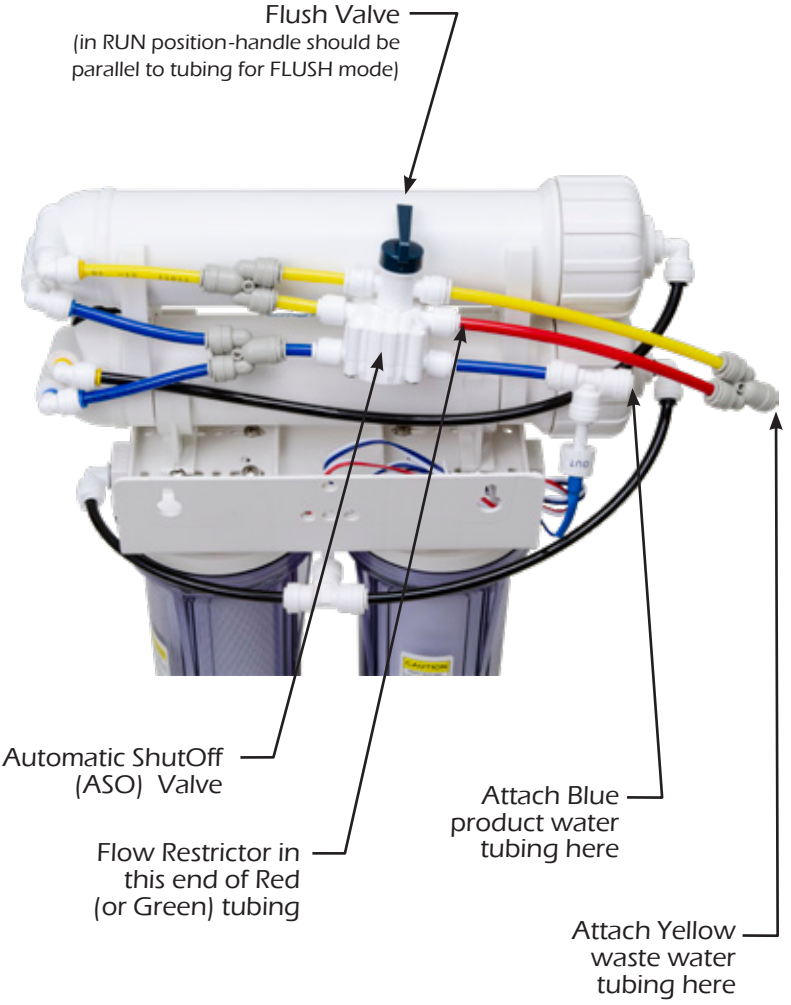
SYSTEM COMPONENTS — CSP - 90 - MF

(CSP-180-MF is the same except that it has two membrane housings)

REAR VIEW — CSP-90-MF



REAR VIEW — CSP-180-MF



WORKING WITH PUSH FITTINGS:

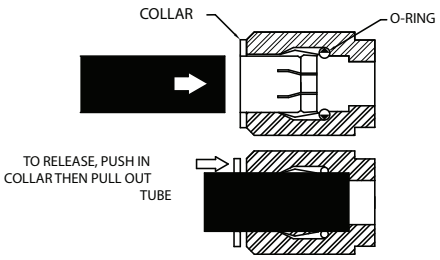
Push fittings are very reliable and convenient tubing connectors.

To remove the tubing from its push fitting:

1. Firmly depress and hold the push fitting collar down with your thumbnail.
2. While the push fitting collar is depressed, pull the tubing straight out of the push fitting. Once the tubing is removed, release the collar.

To reinsert the tubing into its push fitting:

1. Moisten the O-ring seal inside the push fitting by dripping a few drops of clean water into the fitting.
2. Grasp the tubing near the end, and insert the tubing into the push fitting.
3. Push the tubing into the fitting until resistance is felt, approximately 1/2 inch (12.7 mm). The tubing is now resting on the O-ring seal inside the fitting.
4. Firmly push the tubing approximately an additional 1/4 inch (6.35 mm) further into the fitting to completely seat the line into the fitting and past the O-ring seal.
5. Turn on the system water supply and check for leaks prior to further use or testing. If a leak is observed, you may not have pushed the tubing into the push fitting far enough to seal the tubing against the O-ring. Turn off the system water supply and reseat the tubing as described above.



SYSTEM INSTALLATION & INITIALIZATION:

1. Most of the components of this system are plastic and are subject to damage by ultraviolet light from the sun and other sources such as metal halide lighting.
2. Avoid installing this unit in an area where it may be subjected to bright light or direct sunlight, as algae is more likely to thrive inside the clear filter housings when exposed to bright light. The unit must be kept out of areas that are subject to freezing temperatures.
3. High temperatures greater than 113° F (45° C) must be avoided. If the unit is used outside, avoid putting the system in direct sunlight or connecting it to a garden hose that may be exposed to sunlight.
4. Attach the black tap water tubing to the left side of the Sediment Filter Housing. (See Page 6)
5. Attach the yellow drain line to the "Y"-connector at the rear of the system. This "Y"-connector already has a yellow and green (or red) tube attached to it. (See Pages 7-8)
6. Attach the blue product line to the open end of the Tee Fitting with the OUT probe (see Pages 7-8).
7. Attach the black tubing and elbow(s) to the membrane housing cap(s).
8. Attach the garden hose adapter **(connected to the black tubing)** to your cold water source. Never run hot water (greater than 113° F/45° C) through the system.
9. A provided ball valve can be located at a convenient place on the black tap water line. Cut the black tubing in two and reconnect the two cut ends with the ball valve.
10. Place the **yellow concentrate (waste) tubing** and the **blue purified (product) water tubing** temporarily into a drain. Do not restrict flow from these lines.
11. There is one group of red, white, and blue sensor wires. At the end of the wires, you will find a white connector. Just insert the connector into the receptacle on the top of the TDS meter. You can then use the Velcro on the back to mount the meter wherever it's convenient. For example, even on a wall for easier viewing.

(continued on next page)

12. Open the cold water supply valve. The pressure should not exceed 80 psi.
13. Check the system to ensure that all fittings are tight and leak-free before leaving the system unattended. (If anything is leaking, contact SpectraPure for assistance.)
14. Set the TDS meter to "OUT" and run the system until the meter reading stops dropping. The water is now ready to use. **You can set the meter to read either probe at any time**.
15. Close the cold water supply valve.
16. Finish the installation by directing or connecting the yellow line to a permanent drain.
17. Install the included Float Valve onto a collection reservoir. See below.
18. Attach the blue line to the Float Valve.

NOTE: It may take several days of normal operation for the membrane to reach its full production rate.

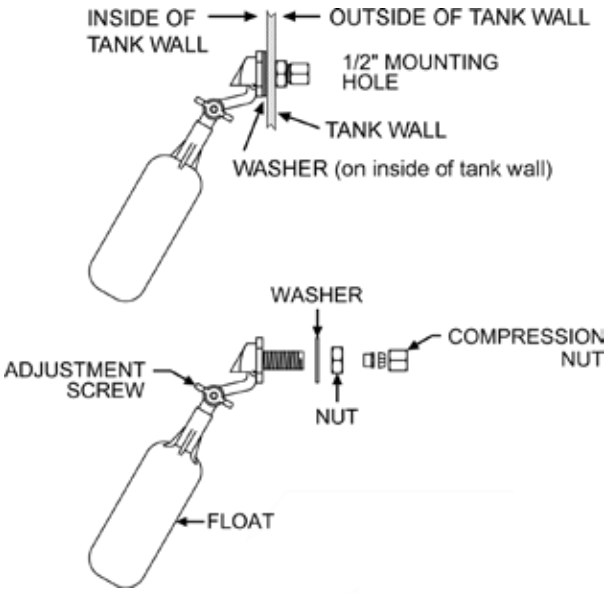
INSTALL THE FLOAT VALVE:

1. Drill a 1/2" hole near the top of your reservoir:

NOTE: If you are installing the Float Valve onto an acrylic tank we recommend using a new Fostner Bit to reduce the chance of cracking the acrylic.

2. (Refer to Diagram on next page) Remove the Compression Nut from the float body.
3. Insert the 1/4" Blue Tubing into the 1/2" Compression Nut with the threads towards the end of the tube.
4. Unscrew and remove the remaining nut from the float body.
5. Insert the float body and washer into the 1/2" hole and tighten the nut, which securely tightens the float to the tank wall.
6. Push the Compression Nut towards the end of the tubing and screw the Compression Nut back onto the float body.
7. To tighten, use one 1/2" wrench on the flats of the plastic threads and another 1/2" wrench on the Compression Nut.

FLOAT VALVE ILLUSTRATION:



HOW IT WORKS:

The increasing water level raises the Float Valve in the reservoir and stops the flow of water. Pressure builds up in the product line and ASO Valve until the ASO Valve shuts off the flow of waste water to drain. This "OFF" condition will be maintained until the reservoir needs more water and the Float Valve drops, allowing both product and waste water to flow again.

NOTE: This configuration maintains house pressure in the prefilters, membrane and pressure gauge when in the "OFF" condition. Also, this system WILL NOT WORK with any kind of "bladder tank" attached to the product line.

An optional float kit can be used for filling an additional sump or reservoir. Our Float Kit (SPFK) includes a Float Valve and 1/4" Union Tee.

FLOW RESTRICTORS AND TEST STRIPS:

These systems are supplied with TWO Flow Restrictors (FR) - RED and GREEN. See Page 8. The RED FR (pre-installed) produces a preset waste-to-product ratio of 3:1 and the optional GREEN FR has a 2:1 ratio.

Two Test Strips are provided to determine the Total Hardness (this is NOT TDS) of your tap water. To test: Dip the colored end into a small tap water sample for 3 seconds. Remove and do not shake. Wait for 20 seconds and then match with the closest color block on the back of the package. Color is stable for 1 minute.

If the Total Hardness is 180 or greater, you should keep the RED FR installed. If the Total Hardness is less than 180, you may replace the RED FR with the GREEN FR (see "Working with Push Fittings"). Be sure to note the orientation of the small "plug" in the end of the removed FR and install the new FR with the same orientation.

The RED FR has a waste-to-product ratio of 3:1, which will increase the amount of water used, but also increase the lifetime of the RO membrane. In hard water conditions, you may use the GREEN FR to save water, but the RO membrane will not last as long, as it will plug up with hardness much more quickly.

SYSTEM STORAGE:

1. We recommend that you store your RO System in a cool and dark place when not being used.
2. Your RO System must always be protected from freezing or temperatures above 113˚ F (45˚C).

THE MANUAL FLUSH VALVE:

The Manual Flush Valve is located in parallel with the flow restrictor (see pages 7-8) and when opened, provides a high-flow bypass of waste water used to purge concentrated brine from the membrane housing and rapidly flush any particulates from the membrane surface. This is especially useful in hard water conditions. The valve can be turned ON for 30 seconds at the start of a fill cycle and/or at the end of a fill cycle.

NOTE: Be sure to turn the flush valve back to the "closed" position before making product water. You do not have to turn the system off to change the position of the flush valve.

NORMAL POSITION (closed)

When the flush valve is in the "closed" position, the water flows through the flow restrictor (located in the Red or Green tubing) which creates back pressure in the membrane housing and forces the water through the RO membrane. This is the normal position to make purified water.

FLUSH POSITION (open)

When the flush valve is in the "open" position, the unimpeded water flows out of the membrane housing and directly down the waste water line. This serves to rinse the accumulated impurities and concentrated waste water from the surface of the RO membrane to help increase the life of the membrane.

SEDIMENT PREFILTER REPLACEMENT:

A Sediment Filter will usually last approx. 4-6 months, depending on the quality of the tap water and quantity of water being produced. (The life span of the filter is determined by the turbidity, iron content, organics, and total particulate volume in your water source). The best way to determine when your Sediment Prefilter needs replacement is to monitor the Pressure Gauge. When you have a drop in pressure of15-20% below your normal gauge pressure, replace the filter. To verify this, run water through the system without the filter in its housing. If the pressure returns to your normal house pressure without the filter, you will know the filter you just took out was plugged up and causing the pressure drop.

**NOTE: A drop in the system's production is, in most cases, an indication that the sediment filter has become saturated with contaminants and will need to be replaced. If you remove the sediment and the pressure does not return to normal, the carbon filter may be plugged. If your water contains a great deal of sediment or chlorine, the prefilters may require more frequent changes to maintain adequate production rate and extended membrane life.

Sediment Prefilter Replacement

Materials Required: Sediment prefilter (SF-MT-0.5-10), Filter Wrench (WR-UNIV)

Procedure:

1. Turn off water supply to the system.
2. Using the provided filter housing wrench, remove the first housing on the left. Unscrew it clockwise as viewed from the top.
3. Remove the old filter and discard.
4. Thoroughly wash the housing with a mixture of hot soapy water and a few teaspoons of household bleach. Rinse well with clean hot water.
5. Insert the new prefilter into the housing, Screw the housing back onto the assembly and hand-tighten **only**.

NOTE: **Do not use filter wrench to tighten housings. Over-tightening will damage housings and void your warranty.**

6. Proceed with carbon block filter replacement.

CARBON BLOCK FILTER REPLACEMENT:

A Carbon Filter will usually lasts 4-6 months ,depending on the chlorine (or chloramine) content of your tap water and quantity of water being produced. The best way to determine when your Carbon Block Prefilter needs replacement is to use a chlorine test kit.

Any chlorine level above 0.1 ppm will cause damage to the membrane and indicates that the carbon block filter must be changed. To test for chlorine breakthrough, collect a 10 ml sample of the concentrate from the yellow tubing and test the chlorine concentration using test kit TL-CL-10-KIT. If the chlorine concentration is above 0.1ppm, replace the carbon prefilter.

**NOTE: A drop in the system's production is, in most cases, an indication that the sediment filter has become saturated with contaminants, but a carbon filter can also decrease production if it's covered with extremely fine sediment. If the carbon becomes plugged with sediment, it will no longer be able to remove chlorine.

Carbon Block Filter Replacement

Materials Required: Carbon Block prefilter (CF-0.5-10), Filter Wrench, Chlorine Test Kit (TL-CL-10-KIT)

Procedure:

1. Turn off water supply to the system.
2. Using the provided filter housing wrench, remove the second housing from the left. Unscrew it clockwise as viewed from the top.
3. Remove the old filter and discard.
4. Thoroughly wash the housing with a mixture of hot soapy water and a few teaspoons of household bleach. Rinse well with clean hot water.
5. Insert the new carbon block filter into the housing, Screw the housing back onto the assembly and hand-tighten **only**.

NOTE: **Do not use filter wrench to tighten housings. Over-tightening will damage housings and void your warranty.**

6. Turn on system water supply and check for leaks.

RO MEMBRANE REPLACEMENT:

1. Turn off the water supply to the RO system. Place the system where the membrane housing(s) can be easily accessed.
2. Remove the black tubing from the membrane feed push fitting by depressing the collar on the fitting with your thumb and pulling the tubing from the push fitting. You should not have to remove the blue and yellow tubes.
3. Lift the membrane housing from the retention clips and unscrew the membrane housing cap. This may require two people.
4. Use a pair of pliers to grasp the membrane stem and pull the membrane from the housing.
5. Remove the black housing O-ring. Wash the empty housing with soapy water. Rinse thoroughly with hot, clean water.
6. Insert the new membrane into the housing, with the double o-ring end first. The o-rings and tube must fit into the recess at the bottom of the membrane housing. When the membrane is aligned with the recess, firmly push the membrane into the recess until it bottoms out.
7. Place the black housing O-ring on the housing rim and carefully screw the lid back on to the base. Hand-tighten.
8. Reconnect the black tubing to the membrane feed push fitting.
9. If you have a dual-membrane system (-180), perform steps 2 thru 8 on the second membrane.
10. Open the Flush Valve and allow the system to flush for several minutes to remove any loose particles.
11. Close the Flush Valve and turn on the water supply to the system.
12. Check for leaks.

RO MEMBRANE DIAGNOSTICS:

In order to accurately determine the condition and performance of the RO Membrane, a conductivity tester capable of reading the tap water conductivity (or TDS) and the product water conductivity (or TDS) would typically be required. The CSP RO system comes equiped with such a device.

You may also use an alkalinity test kit (on softened water sources) or a hardness test kit (on non-softened water sources).

Note: All water sources are different and are subject to changes in conductivity from season to season which could affect the TDS reading depending on the time of the year. For this reason, we recommend the use of a conductivity (TDS) tester in order to determine the most accurate measurement for determining the condition of the RO membrane.

TESTING THE QUALITY OF THE MEMBRANE:

The performance of a RO membrane is measured by its ability to reject salts or TDS (Total Dissolved Solids). This procedure will require a TDS Meter. SpectraPure offers several models:

MTR-TDS-EZ	HM Digital Hand-held TDS Meter
MTR-TDS-DM1	HM Digital In-Line Dual Probe TDS Meter

General Procedure:

1. Measure tap water TDS. (Call it X)
2. Run the system for 15-20 minutes.
3. Rinse test instrument cell 2-3 times with RO water.
4. Measure RO water TDS directly from the blue product water line. (Call it Y).
5. Subtract RO water TDS from tap water TDS. (X - Y)
6. Divide this quantity by tap water TDS. (X - Y) ÷ X
7. Rejection = [(X - Y) ÷ X] ×100

TDS in the above procedure is measured in ppm or mg/l.
Important: Test the quality of the membrane once every 6 months.

Rejection of the RO Membrane Calculation Example

1. Tap water TDS = 150 ppm (X)
2. RO water TDS = 15 ppm (Y)
3. X - Y = 135 ppm
4. (X - Y) ÷ X = 135 ÷ 150 = 0.90
5. Rejection = [(X - Y) ÷ X] ×100 = 0.90 ×100 = 90%

NOTE: Rejection rates less than 95% may indicate that the membrane should be replaced.

MEMBRANE PRODUCTION CALCULATION:

Membranes produce the rated gallons per day (GPD) at 60 psi (4.1 bars) operating pressure, 77°F (25°C) operating temperature and with no more than 500 ppm total dissolved solids.

Membrane output gallons per day (GPD) depends on operating pressure, water temperature and the TDS in the feed water.

Expected GPD = Rated GPD × PCF × TCF

PCF is the pressure correction factor

TCF is the temperature correction factor

Calculation of Pressure Correction Factor (PCF): The output (GPD) from the membrane is directly proportional to the applied pressure.

NOTE: The membrane is rated to produce the rated GPD at 60 psi. For any pressure other than 60 psi the output GPD is multiplied by the PCF.

PCF = Line Pressure (in psi) ÷ 60

Calculation of Temperature Correction Factor (TCF): The output (GPD) decreases with a decrease in temperature. This is due to water viscosity increasing with a decrease in water temperature.

Temperature Correction Factor Table (TCF)

˚F /˚C	TCF	˚F /˚C	TCF	˚F /˚C	TCF
41.0 /5	0.521	59.0 /15	0.730	77.0 /25	1.000
42.8 /6	0.540	60.8 /16	0.754	78.8 /26	1.031
44.6 /7	0.560	62.6 /17	0.779	80.6 /27	1.063
46.4 /8	0.578	64.4 /18	0.804	82.4 /28	1.094
48.2 /9	0.598	66.2 /19	0.830	84.2 /29	1.127
50.0 /10	0.620	68.0 /20	0.857	86.0 /30	1.161
51.8 /11	0.640	69.8 /21	0.884	87.8 /31	1.196
53.6 /12	0.661	71.6 /22	0.912	89.6 /32	1.232
55.4 /13	0.684	73.4 /23	0.941	91.4 /33	1.267
57.2/14	0.707	75.2 /24	0.970	93.2 /34	1.304

Membrane Output Calculation Example

What is the expected GPD from a 100 GPD System at 40 psi pressure and 60˚F water temperature?

PCF = 40 ÷ 60 = 0.666
TCF = 0.754 (from Table above)

Expected GPD = 100 × 0.666 × 0.754 = 50.2 GPD ± 15%

50.2 GPD would be the Actual Production Rate

TIPS FOR LONG MEMBRANE LIFE:

1. Replacement of sediment filter at least once every 6 months.This will prevent membrane fouling due to silt or sediment depositing on the membrane.
2. Replacement of carbon block filter at least once every 6 months or when chlorine breakthrough occurs. This will ensure good membrane life and protect the membrane from chlorine damage.
3. Membrane should not be operated at lower than the minimum 2:1 concentrate to purified water ratio.
4. Operating reverse osmosis systems on softened feed water greatly reduces the chances of membrane fouling.

TROUBLESHOOTING GUIDE:

1. Low production rate:
   - a. plugged prefilters. — i. Replace prefilters.
   - b. low water temperature — ii. Warm feed water OR use higher GPD membrane.
   - c. low line pressure. — iii. Use booster pump OR use higher GPD membrane.
   - d. high TDS content. — iv. Use booster pump OR use higher GPD membrane.
   - e. fouled membrane. — v. Replace membrane to restore flux.
   - f. plugged flow restrictor. — vi. Replace flow restrictor & membrane.
2. Zero production rate:
   - a. Missing flow restrictor. — i. Install flow restrictor in the yellow line.
   - b. Dried RO membrane. — ii. Try to restore flux by soaking in rubbing alcohol OR replace the membrane.
   - c. Plugged flow restrictor. — iii. Replace flow restrictor and replace the membrane.
   - d. Flush Valve is open. — iv. Close Flush Valve.
3. Extremely high production rate:
   - a. Ruptured membrane. — i. Replace membrane.
   - b. Very high line pressure (> 80 psi). — ii. Use a pressure regulator.
4. Pressure gauge does not register pressure when the system is "ON"
   - a. Missing flow restrictor. — i. Put flow restrictor in the yellow line.
   - b. Pressure gauge screwed in too far. — ii. Unscrew pressure gauge one-half turn and retest.
   - c. Plugged pressure gauge orifice. — iii. Clean orifice with a needle.
   - d. Defective pressure gauge. — iv. Replace it.

SANITIZING YOUR SYSTEM:

(It is recommended that you sanitize the system once a year.)

1. Turn tap water source off and remove all filters from the system, including the RO membrane
2. Mix together hot water, soap and a little bleach.
3. Scrub filter housings and rinse with clean tap water to remove soap and bleach.
4. Place filters back into housings and reconnect lines.

ONE YEAR LIMITED WARRANTY:

SpectraPure, Inc.® warrants the product to the original owner only to be free of defects in material and workmanship for a period of one year from the date of receipt. SpectraPure's liability under this warranty shall be limited to repairing or replacing at SpectraPure's option, without charge, F.O.B. SpectraPure's factory, any product of SpectraPure's manufacture. SpectraPure will not be liable for any cost of removal, installation, transportation or any other charges which may arise in connection with a warranty claim. Products which are sold but not manufactured by SpectraPure are subject to the warranty provided by the manufacturer of said products and not by SpectraPure's warranty. SpectraPure will not be liable for damage or wear to products caused by abnormal operating conditions, accident, abuse, misuse, unauthorized alteration or repair or, if the product was not installed in accordance with SpectraPure's or other manufacture's printed installation and operating conditions, or damage caused by hot water, freezing, flood, fire or acts of God.

SpectraPure will not be responsible for any consequential damages arising from installation or use of the product, including any water or mold damage due to flooding which may occur due to malfunction or faulty installation, including, but not limited to failure by installer to over- or under-tighten fittings, housings, and/or push-style fittings, or improper installation of push-style fittings. Consumable items such as prefilters and membranes are not covered under the one year warranty.

To obtain service under this warranty, the defective system or components must be returned to SpectraPure with proof of purchase, installation date, failure date and supporting installation data. Any defective product to be returned to the factory must be sent freight prepaid. Documentation supporting the warranty claim and a Return Merchandise Authorization (RMA) number must be included. SpectraPure will not be liable for shipping damages due to the improper packaging of the returned equipment and all returned goods must also have adequate insurance coverage and a tracking number.

SpectraPure will not pay for loss or damage caused directly or indirectly by the presence, growth, proliferation, spread or any activity of "fungus", wet or dry rot or bacteria. Such loss or damage is excluded regardless of any other cause or event that contributes concurrently or in any sequence to the loss. We will not pay for loss or damage caused by or resulting from continuous or repeated seepage or leakage of water, or the presence or condensation of humidity, moisture or vapor, that occurs over a period of 14 days or more. "Fungus" and "fungi" mean any type or form of fungus or Mycota or any byproduct or type of infestation produced by such fungus or Mycota, including but not limited to, mold, mildew, mycotoxins, spores, scents or any biogenic aerosols.

SpectraPure will not be liable for any incidental or consequential damages, losses or expenses arising from installation, use, or any other causes. There are no expressed or implied warranties, including merchantability or fitness for a particular purpose, which extend beyond those warranties described or referred to above.

* **The one year limited warranty does not apply to consumable items, including but not limited to, filters and cartridges unless specifically stated above.**

TERMS AND CONDITIONS:

1. Shipping charges on units or parts submitted to our facility for repair or replacement must be borne by the registered purchaser. After repair or replacement, the factory will return the unit or part freight prepaid to the customer.
2. We assume no warranty liability in connection with our equipment other than as herein specified.
3. This warranty is in lieu of all other warranties expressed or implied, including warranties of fitness for a particular purpose.
4. We do not authorize any person or representative to assume for us any other obligation on the sale of our equipment. This is the exclusive remedy and liability for consequential damages under any and all warranties which are excluded to the extent exclusion is permitted by law.
5. Proof of original purchase date must accompany all warranty claims.
6. SpectraPure, Inc. Reserves the right to change prices without notice when necessary. All prices in the catalog are quoted in US dollars.
7. Claims for error in quantity or condition must be made within 10 days of receipt of material. SpectraPure, Inc. will not be responsible for any claimed shortages not reported within 10 days. Returns other than warranty claims may be subject to 20% restocking fee.
8. SpectraPure, Inc. cannot be held liable for damage or loss to a shipment by a freight carrier. Check shipment for damage before acceptance or note on freight bill subject to inspection for concealed damage. Consignee must file claim. SpectraPure, Inc. will offer as much assistance as possible.
9. A complete credit check is required prior to shipping on a Net 30 basis. In the interim period during which credit references are being evaluated, all orders must be prepaid until approved.
10. All returned checks (due to insufficient funds or closed accounts) will be subjected to a **$35 penalty charge.**
11. Invoices on Net 30 accounts not paid within 30 days of shipment will be considered delinquent and will accrue Finance charges at the rate of 1.5% per month (18% per annum).

REPLACEMENT PARTS:

Part Number	Description
SF-MT-0.5-10	0.5 micron Sediment Filter
CF-0.5-10	0.5 micron Carbon Block Prefilter
MEM-0090	90 gpd/340 lpd TFC Membrane (Use 2 for 180 gpd systems)
FR-90-RED, -GRN	Flow Restrictors for 90gpd/340 lpd System*
FR-180-RED, -GRN	Flow Restrictors for 180 gpd/681 lpd System*

* Green Flow Restrictors have a 2:1 waste ratio recommended for water <180 ppm
Red Flow Restrictors have a 3:1 waste ratio recommended for water ≥180 ppm

UPGRADE PARTS:

Part Number	Description
MEM-SP-0090	90 gpd SpectraSelect Plus 99% Rejection TFC Membrane (Use 2 for 180 gpd systems)

ACCESSORIES:

Part Number	Description
TK-CL-10-KIT	Total Chlorine Test Kit
TK-CL-10TABS	10 Replacement Tabs for Chlorine Test Kit

OPTIONAL ACCESSORIES:

PIGGYBACK UPGRADE KITS (PBK-90), - This add-on kit contains everything you need to double the output (gallons per day) of your existing 90 GPD RO System.

UV PURIFIER KIT (UV-1GPM-KIT) - If you are on a private well you may require a UV kit to destroy harmful bacteria, viruses and other contaminants. This kit contains everything you need to add UV to your Reverse Osmosis System.

BOOSTER PUMP KITS (BPHF-MF-115) - SpectraPure® Booster Pump Kits are ideal for use on water sources with pressures below 40 psi such as private wells, gravity feed water systems and high-rise apartments.

ADDITIONAL FLOAT VALVE KIT (SPFK) - Add a second or multiple float valves to your existing system.

NOTES: