EUREKA FORBBES WATER PURIFICATION SYSTEM AQUA GAURD PLUS OWNER'S MANUAL

Third Generation Reverse Osmosis System for Prime Quality Water

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Mission of Eureka -Forbbes is to be respected company world wide. Dedicated to serve and supply water purification products to individual, industries and others. We strive to improve the quality of life and the environment and durable and innovative products.

Dear Valued Customer,

Congratulations! You are now the owner of worlds finest water purification unit, manufactured by **Eureka -Forbbes Water Technologies** a world leader in the water purification industry. We take pride in our solid reputation for product quality and industry – proven performance.

We are certain that your decision to own **Eureka -Forbbes Water Purification System** will go a long way towards keeping you and your family in good health. With the scarcity of water and increase in water pollution problem, it is hard nowadays for one to rely on conventional source of water supply. More and more people are looking for reliable water treatment systems which can tackle ever increasing, known and unknown pollutant problems in water and procure safe water. We are confident that you will be satisfied with its working and that it will serve your needs for safe supplies for a long time.

It is worth mentioning here that water from **Eureka -Forbbes Water Purification System** has been designed keeping the above in mind and can be used not only for drinking and cooking needs but also for a number of other requirements as well. You can use treated water to prepare you baby's feed, wash vegetable and fruits and for many more purposes. This manual tells you about Eureka -Forbbes Water Purification System in details and will provide tips on installation along with useful information in Reverse Osmosis Technique.

With best wishes,

"Pure Water Healthy Life!"

Eureka -Forbbes Water Technologies
Consumer Products Division

INTRODUCTION

Eureka -Forbbes Water Purification System has been designed to tackle most of water pollution problems. System is made in modular form to treat individual pollutant problems (Sediments, Taste, Odor, Organic Chemicals and Salt), one by one in different stages. Considering the importance of aesthetic value of fresh and smell free water, purification (removal of taste and odor producing chemicals) is done in more than one stage. For removing excessive amount of salt (brackishness) from water, best quality reverse Osmosis Membrane TW30- 1812-50 has been incorporated in the system.

Your Reverse Osmosis System has been thoroughly tested and inspected for leaks, product water quality, product water output and shut-off function, for at least 48 hours at our factory. Therefore, the system may have some water in it. You may install the R.O. System on either side of the cabinet panels underneath your kitchen sink.

Important Reminder

The Undersink Reverse Osmosis drinking water appliance is designed to connect permanently to home plumbing system. The appliance should only be connected to municipal water supply, under the following conditions;

Water Condition

Do not use the appliance where the water is microbiologically unsafe or the TDS level is above 2,000 ppm. Use the unit with cold water only.

Water Temperature

Do not filter water with temperature higher than 38 ^{o}C.

Water Pressure

Do install the appliance only on water lines with a pressure of 10 to 40 psi.

Installation Location

Do not place the appliance at a location with high humidity to prevent damages to the electrical components. Do not place the system under sun light or any light sources. Do not spray water or liquid on the appliance.

Replacement of Filter Cartridge

Replace filter cartridge as recommended. The replacement of filter cartridge is essential for the appliance to perform as intended.

Please read and follow the instruction closely to ensure that you R.O. drinking water appliance operate effectively. Failure to install, operate and maintain the appliance as instructed will void the warranty.

INSTALLATION INSTRUCTIONS

Eureka -Forbbes Water Purification System has been designed for under the sink installation. System is supplied with most of the built-in connection. A few connections however, need to be made by customers themselves. Our technicians are also available to do the job for you. Kindly follow the flow chart and complete the connections. Mount the system on to the wall where it has to be installed. Slot holes are present in the back plate of the system for mounting purpose. Connect the feed water line (cold water line supplying to sink faucet) to the feed water pipe of the system. Feed water connector with brass ball valve is supplied to make the connection. Use Teflon tape to make sure that there are no leakages. Likewise connect the drinking water faucet to the pipe coming from the Post Carbon Filter Cartridge. A hole needs to be made in the sink for faucet fixing.

Flow Restrictor (brine flow control) pipe has to be put in the drain so that Cross-Flow reject water can go to drain. After making all the above connections, connect the power plug to the electric supply line, open or feed water connector value so that water starts flowing into the system. The system will start working and you will be able to take water after a few minutes. **Drain one full tank of water,** before taking the water for potable use. In case you find any problem in installing the system, please seek assistance from your local distributor. Different installation methods are used depending on the type of water supply piping arrangement in you home.

Undersink Supply Piping Arrangement

1. Turn off cold water valve or the main valve.
2. Loosen nut at the top of riser.
3. Install the feed water adapter valve.
4. Reconnect the nut with cone washers to the feed water adapter.
5. Connect 1/4” (or 3/8”) tubing to feed water adapter valve, using compression nut, plastic sleeve and insert.
6. Drill at 7/16” or 1/2” hole, on top of the sink where you can conveniently install the faucet. Disconnect blue hose from the faucet, and secure the faucet to the sink, by tightening the brass nut and washer.
7. Assemble drain tap around drain pipe under the sink. Firmly tighten bolts and nuts evenly. Brackets should be parallel. Drill a 5/16” hole on drain pipe, through threaded hole of the drain tap. Connect blue hose to the faucet and tighten faucet.

Wall Mount Mixer or Faucet (Option)

1. Turn off water main valve. Remove the faucet.
2. Install feed water adapter valve on the cold water side only.
3. Install the extension piece on the hot water side.
4. Reinstall the faucet.

START UP OF THE PURIFICATION SYSTEM

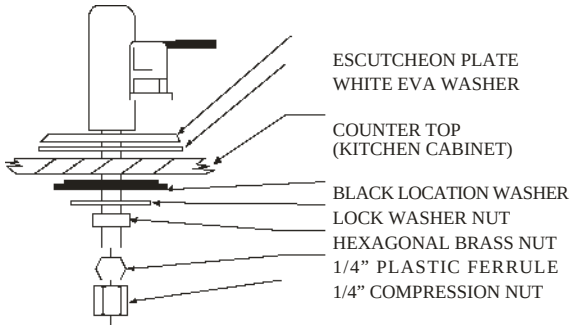
1. Make sure that all connections are secure.
2. Turn on feed water adapter valve and check for leaks. If any leaks are found, do not proceed further until the leaks are fixed.
3. Insert the plug into an appropriate electric power outlet

Check Operation Status

1. Measure TDS and recovery rate.
2. After flushing, use TDS meter to measure the TDS value of purified water and compare the valve to the feed water.
3. The purified water reading should read about 5-8 percent of feed water reading.

Warning: Check R.O. System thoroughly for any leaks. Make sure all fitting are tight, observe for few hours.

Note: Always waste the first water tank full of water before use. If the first tank full of water has black residue, it is normal as that is carbon particles washing away.



ANSWERS TO SOME QUESTIONS YOU MAY HAVE ON THE POTABILITY OF WATER

Aren't domestic filters good enough?

Filters trap dirt particles. However, these dirt particles, so trapped, can serve as breeding grounds for bacteria. This bacterium multiplies at a phenomenal rate, which flows out along with the drinking water.

Eureka -Forbbes Water Purification System effectively destroys microscopic bacteria and viruses by the R.O. treatment.

What about filtration after boiling?

Micro-organisms are inactivated if the water is heated to boiling temperature. However, subsequent cooling and handling can lead to re-contamination. Filtering again will trap dirt particles and bacteria will again breed on these dirt particles/multiply and flow out along with the output water. Eureka -Forbbes Water Purification System avoids all this by purifying water just before you drink it.

What about chemical treatment like addition of chlorine tablets/drops to drinking water?

Chlorine is a toxic chemical. Its use requires utmost care and caution. Besides, chlorine gives water a peculiar taste and odor which also forms cancerous compounds. Eureka -Forbbes Water Purification System does away with the addition of chlorine to your drinking water. It purifies water without using any chemicals.

Does one have to boil water before consumption?

Eureka -Forbbes Water Purification System purifies water in following stages.

1. Pre-filtration (removal of sediments).
2/3. Purification (taste and odor removal; double treatment in 2 stages).as well as color
4. Desalination (removal of salt).
5. Polishing and purification (taste and odor improvement and polishing).

Thus providing you potable drinking water at the flick of a switch. So you don't have to worry about the cumbersome process of boiling and also risk of re-contamination while cooling

Does Eureka -Forbbes Water Purification System have a pre-filter?

The pre-filter is very much a part of the system which is provided with a Poly Propylene Yarn Cartridge of 5m (Five Micron). The pre-filter cartridge strains out all physical impurities present in water and improve the appearance of water. The pre-filtration cartridge also prolongs the life of the Activated Carbon Cartridge which is used in the second stage. The pre-filtration cartridge is replaced after every 3-4 months (average) or when there is a significant decrease in the amount of water being treated by the unit due to clogging of the cartridge.

What does Granular Activated Carbon (GAC) Cartridge do?

GAC Cartridge absorbs dissolved organic impurities like colour, free chlorine, insecticides, pesticides etc. It would need replacement depending on the organic matter contamination input water and the quantity of water consumed. Granular Activated Carbon (GAC) Cartridge would require replacement after every 4th month of usage when the unit is in use in office or after every 6 months in home.

How to replace the cartridge (pre-filter and purification filter)?

1. To replace filter cartridges first disconnect the plug and turn-off the water valve (if open).
2. Unscrew the sump portion of the filter housing, turning it in the anti-clockwise direction with the spanner.
3. Remove the old cartridge from the sump, wash the sump with soap/detergent, and then rinse with water.
4. Remove the shrink wrap from the new cartridge and place it in the same position.
5. Tighten the sump back. This time in clockwise direction. (Don't use spanner for the tightening of the sump. This may over tighten the sump consequently cracking sump of the housing). The turn-on the tap and release the air from the housing by pressing the Air-Releasing Button present on the wall mounting bracket. Keep the button in the pressed position till water starts ooze out from it.
6. In the beginning, some particles may be seen floating in the treated water. Drain the water through the unit for about 2 to 3 minutes until all such particles are drained.

RECOMMENDED PROCEDURE FOR WATER TESTING

Collection:

1. Water should be collected in a sterile container impervious to light (min. quantity 125 ml).

2. The container should be maintained at 4^{o} C to 10^{o} C during transportation.

3. Water should be transported within one hour and tested in the next two hour of sampling (i.e. analyzed within 3 hours of sampling).

RECOMMENDED TESTS FOR WATER ANALYSIS

Water should be tested for:

1. Total plate count by membrane filtration technique.
2. Total coliform count.

Detailed procedures to be followed are as per "Standard Methods for Examination of Water & Wastewater"-1985 16th Edition, prepared & published by the American Public Health Association, USA (Pages 860-901).

Water testing, if any, shall be done as per procedure specified in the User Manual and comparison, if any shall be done only against W.H.O. standards as specified in the User Manual.

Documents pertaining to the efficacy of ultraviolet light in water purification system are available at Eureka -Forbbes Office.

NOTE:

Modification in the production may be introduced from time to time and consequently the details given in this manual are subject to alteration without pervious notice.

STANDARDS FOR POTABLE WATER

Standard for drinking water	W.H.O	U.S. E.P.A A.P.H.A A.W.W.A.
Total Bacteria Count	Test not specified by W.H.O. 95% of the samples should not contain coliform	5 Organisms/ml 95% of the samples should not contain Coliform.
E. Coli	No. E. Coli in 100ml	No E. Coli in 100 ml

GENERAL STANDARDS FO SOME WATER CHARACTERISTIC AND CONSTITENTS (EXPRESSED AS PPM)

	Excellent	Good	Usable	Passable	Generally Unacceptable	Current U.S. EPA Drinking Water Range
Chlorides (as CaCo3)	Less than 100	100-250	250-500	500-1,000	Over 1,000	250***
Color (as APHA units)	Less than 3	3-15	15-30	30-50	Over 50	15 color units***
Fluoride (as F)	Less than 0.1	0.1-0.3	0.3-0.8	0.8-12	Over 1.3	2***
Hydrogen sulfide (H2S)	Less than 0.05	0.05-0.1	0.1-0.2	0.2-0.5	Over 0.5	
Iron (as Fe)	Less than 0.05	0.05-0.3	0.3-0.4	0.4-0.5	Over 0.5	0.3***
MBAS*	Less than 0.2	0.2-0.5	0.5-10	1-2	Over 2.0	
Manganese (as Mn)	Less than 0.01	0.01-0.05	0.05-0.10	0.10-0.15	Over 0.155	0.05***
Ph	7.0-7.4	7.0-8.5	6.5-9.0	6.5-9.0	Less than 6.5 or more than 9.5	6.5-8.5***
Sulphates (as CaCo3)	Less than 100	100-250	250-500	500	Over 500	250***
TDS** (as CaCo3)	Less than 200	200-500	500-1,000	1,000-1,500	Over 1,500	500***
Lead	-	-	-	-	Over 0.05	0.05***
Radium 226/228	-	-	-	-	Over 5.0	5.0 pCi/L***
Silver	-	-	-	-	Over 0.10	0.05***

OTHER GENERAL LIMITS OF WATER CHARATERISTCS OR CONSTITUENTS

Chemicals	Permissible Criteria		Chemicals	Permissible Criteria
Arsenic As^{+3} As^{+5} As^{+6}	0.05	Ppm	Cyanide	0.20 ppm
Barium	1.00	Ppm	Nitrates plus	10.00 (as N) ppm
Lead	0.015	Ppm	Nitirites	1.00 ppm
Boron	1.00	Ppm	Selenium	0.01 ppm
Cadmium	0.01	Ppm	Silver	0.05 ppm
Chromium (Hexavalent)	0.05	Ppm	Zinc (as Zn)	5.00 ppm
Copper	1.00	Ppm	Strontium	10.0 pc/L

Less than = ***

TROBLESHOOTING

	Symptoms	Causes	Remedy
n	No water production. Less water production	Feed water shut-off./ low pressure Tank valve closed.	Turn-on feed water. Open tank valve.
n	Leaking filter housing or membrane vessel.	Defective or misaligned O-ring.	Change or realign O-ring.
n	Leakage at threaded connection.	Connection nut loosen or not properly tightened.	Wrap the thread with Teflon tape and tight evenly and firmly.
n	Leakage at tubing.	There is a bend in the tubing.	Realign and cut the tube.
n	Bad-tasting water.	Tank contaminated. Pre-filters of membrane fouled.	Sanitize the tank. Change pre-filter cartridge first. If bad-tasting condition persists, replace the membrane.
n	High TDS in products water.	Cross membrane pressure is too low. Brine seal on membrane is leaking. Membrane has expired.	Change pre-filters & check pump-output pressure, which should be about 80~100 psi. Replace the brine seal. Replace the membrane.
n	Nominal or no purified water flow from the faucet.	Loss of air pressure in the tank. Check valve failed or membrane fouled. Valve stucks at O-ring.	Pump air pressure in the tank up to 8 psi. Change check valve or replace the membrane. Replace the O-ring.
n	Pump functioning but not producing purified water.	Pre-filter carbon cartridge clogging. Water inlet solenoid valve failed.	Check and replace the cartridge. Check and replace the solenoid valve.
n	Pump not functioning.	Low water supply pressure. High/low pressure switch not working Burnt boosting pump. Burnt transformer.	Adjust low pressure switch to 10 psi setting. Replace the pump. Replace the transformer.
n	Abnormal cycling of pump.	Pre-filter clogging or low feed pressure.	Change the filter or adjust low pressure switch to 10 psi setting.
n	Abnormal shutdown or pump after short while	Inadequate high pressure switch setting.	Set high pressure switch to 40 psi setting.

SYSTEM OPERATION

First time Operation

1. Plug in the power supply. Allow several minutes for the system to flush and fill.

2. Do not drink the first tank of water. About one to two hours after the system has started, turn on the faucet and drain the first tank full of water completely.

When Abnormal Conditions Occur

1. Shut off the system. Unplug power supply, and then turn off feed water adapter valve.

2. Call authorized service centre of distributor. Before calling, please try your best to determine exactly the problem you have countered by referring to the "Troubleshooting" section.

Away From Home

1. If you are not using the system for more than two weeks, shut off the system and drain the stored water.

2. Turn off feed water adapter valve.

Restarting the System

1. Turn on the feed water adapter valve.

2. Plug in the power supply.

Changing the Filter Cartridges

If you are not familiar with the appliance, please call your local service centre or distributor for servicing.

1. Follow the proper procedure to shut off the system.

2. Use a housing wrench to open the housing. Make sure the system always stands upright during filter changes.

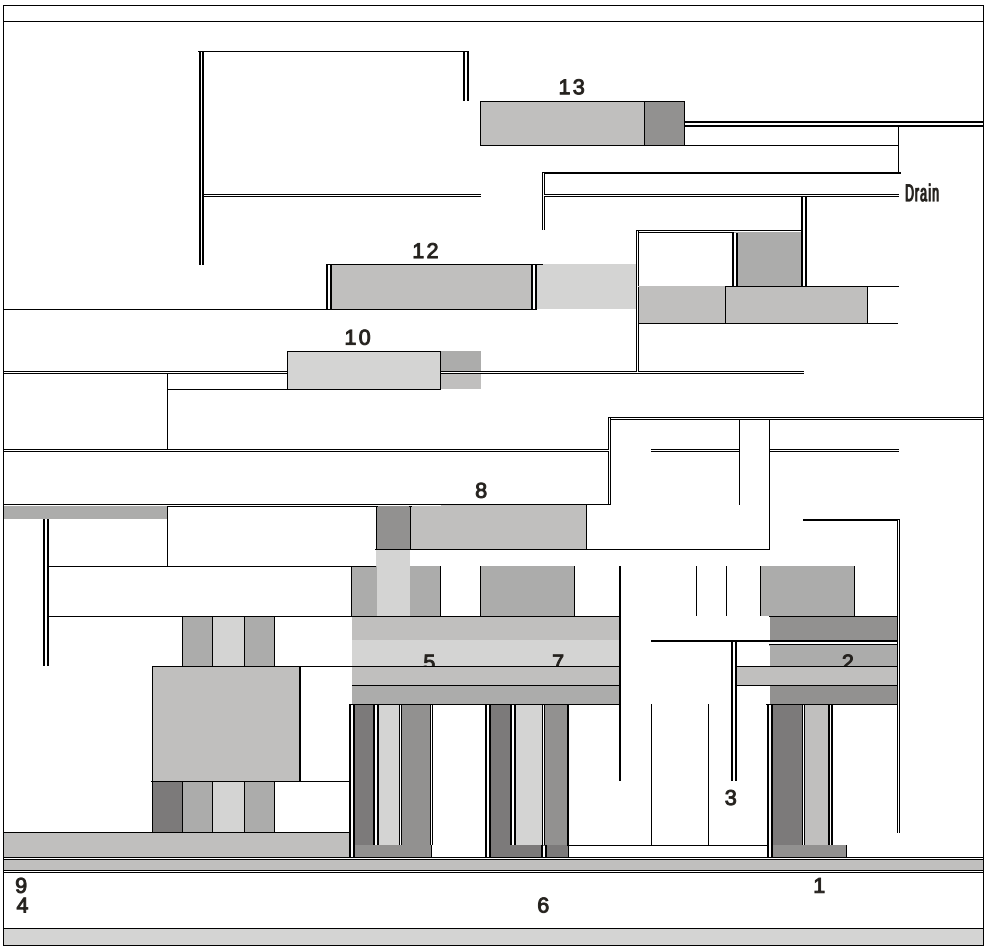
3. Replace the correct cartridge. Lubricate the O-ring with a small amount of petroleum or glycerin (e.g. Vaseline) filter housings 'O' ring do not used efface at threads. Please ensure that proper direction of flow is maintained before changing the filter.

SYSTEM MAINTENANCE

The replacement of the filter cartridge depends greatly on the quality and condition of the water in your area. Use common sense and good judgment to determine the replacement time. To ensure that your reverse osmosis drinking water appliance performs at its maximum capacity, please follow the maintenance manual.

Cartridges	**Recommended Replacement Frequency**
Diagram B **Sediment filters**	Replace after every three months or as often as needed.
Diagram A **Carbon pre-filters**	Replacement depends on the water usage and chlorine concentration in you area. As a general rule, if the chlorine concentration is less than 0.2 ppm, use the following equation to calculate the Replacement Frequency (RF). $\frac{6{,}000 \text{ (gallon)} \quad X \quad 0.15}{\text{Usage/person/day (gallon/day) X number of person in household}} = \text{RF}$
Diagram **Membrane element**	Replace when persistent high TDS value exist.
Diagram **In line carbon post –filter cartridge**	Replace after every 2,500 gallons.

Note: Filter change and system inspection is available and should be preformed once every year for optimum performance.


13
Drain
12
10
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1

Water purification system

1-Housing

The entire housing is made up of unbreakable and high pressure sustaining FDA approved poly carbonate material. Seeing makes it easy to believe! The transparent housing allows you to see what passes through it and thus monitor the filters condition by its colour.

2-Sediment filter

It removes rust, dust and all other suspended particle from water. (Wood Mattel chips, insects & ancients) Wound P.P. Yarn 5 Micron (WPP 1 05E) Cartridge with Plastic Mounting Bracket (PB).Graduated sediment removal. 100% polypropylene construction. Cartridge free of surfactants, binders and adhesives. The age of filter depends upon the condition of water which is coming from municipality water pipe lines. If water is more contaminated so filter will be changed earlier. The life of filter depends upon condition of water. Its life span is 3-4 month.

3-Booster Pump

It enhances the water pressure to the desired pressure required for the system product. It is a positive displacement, diaphragm pump. Santoprene and polypropylene materials. High safety (Driver 24 VDC), soft mounting for less noise and vibration.

Port fitting 3/8 X 1/4 inches tube elbows. Its maximum pressure allowed is 120 psi.

4-**Opaque Housing**

This housing is for granular cartridge, this is also poly carbonate, but not transparent.

5- Dual purpose Cartridge

This cartridge is made of spun polypropylene; it again does the same filtration which was done earlier by two cartridges for further purification more.

6- Housing

This housing is for granular dual cartridge. It is made up of reinforced polypropylene material, but not transparent.

7- Granular Activated Carbon Cartridge

GAC Series cartridges effectively reduce discarded tastes, odors and chlorine from your drinking water. They are designed to allow maximum contact between the water and carbon, ensuring maximum adsorption.

The construction of the cartridge allows water to enter at one end and pass through the entire length of the cartridge, while an internal expansion pad eliminates channeling or bypass.

Before the water exits the cartridge, a post filter helps remove carbon fines and other suspended particles from the filtered water. The post-filter is permanently fastened to an innovative support basket ensuring that it is firmly secured and eliminating any potential for bypass.

Its life span is 4 month if it is using in office and 6 month if it is used in home.

8-Reverse Osmosis

Filtered and purified water is desalinated in reverse osmosis. Thin film composite reverse osmosis membrane is installed in the unit for best permeate water quality and efficiency cross-flow filtration, where the membrane keeps cleaning itself automatically to ensure longer service period. Treated water is stored in a storage tank from where it can be drawn by turning the faucet value. Treated water comes out from faucet after passing through last carbon filter cartridge.

Definition

A water treatment process that removes undesirable materials from water by using pressure in order to force the water molecules through a semi permeable membrane. This process is called "reverse osmosis" because the pressure forces the water to flow in the reverse direction (from the concentrated solution to the dilute solution) to that of the flow (from the dilute to the concentrated) in the process of natural osmosis.

Benefits:

RO removes ionized salts, colloids, and organic molecules down to a molecular weight of 100. It gives zero tds with out bacteria or any other virus.

You can test the water if you feel water is not good, its life is 1600 gallon and pressure is 125 psi.

Procedure:

The TFC membrane can separate up to 99% of remaining unwanted impurities from your water including tribal methane, bacteria guardian. ..etc. The post - filter can also remove the remaining impurities in your pure water, and also make water taste sweeter. With a protect booster pump, it can boost your system and make it produce pure water more efficiently.

9-Water Tank:

Its storage capacity is 4 (four) Gallons, its height is 11.2 inches and weight is 3.2 kg. Air charge is 8 psi. This tank is rust proof and also approved from FDA.

10 Post Carbon Filter

It is an inline filter for post filtration for reverse osmosis.

- Install the cartridge according to the recommended flow pattern. Cartridge will get chocked and flow rate will drop in case of wrong connection.
- Flush 4 gallons of water through the filter before use.
- Do note use where the water is microbiologically unsafe or of unknown quality without adequate disinfection before or after the unit.

Specifications

- Flow rate : 0.75GPM
- Pressure rating : 125 psi (max.)
- Temp rating : : 100 °F (52 °C)
- Service life : Quarterly
- Port fitting : 3/8" NPT (Internal)
- Burst Pressure : 500 Psi

11-Ultra Violet Sterilizer.

A lamp producing Ultraviolet radiation in the 200-300 nanometer range is emitted through clear, profiteered, particle free water. This UV light is extremely effective in killing and eliminating bacteria, yeasts, viruses, molds and other organisms harmful to a human body.

Ultraviolet systems (UV) expose supply water to intense ultraviolet radiation, which **kill** pathogenic bacteria (cholera, typhoid, salmonella dysenteries, etc.); virus however is not effective against cysts. It has low power consumption. Its flow rate is 1.0 GPM (3.8lit/min), lamp life is 10,000 hours.

1 2-Hydronic Vitalizer

It is all about the information in the water and its cluster sequence. The information which is good for human body is transferred to water; water memorizes it, and affects the human body in a positive way.

Procedure:

The Hydronic vitalizer is a tube made of stainless steel (inox used in pharmaceutical and food industry) covered with informed glass, informed quartz sand, informed water and some other carriers of information, which are inserted in a larger tube made from the same material. The vitaliser, like the informed glass, does not need to contain energy or any other substances. Glasses and vitalisers are manufactured according to the original Hydronic technology, which is based exclusively on information. The information is captured by means of special devices and embedded in the glass and other auxiliary carriers and harmonisers of information. According to the original Hydronic technology it is important for the buyer of this technology to have the opportunity of selecting the kind of information embedded in the medium, in this case the glass. carriers and harmonisers of information. According to the original Hydronic technology it is important for the buyer of this technology to have the opportunity of selecting the kind of information embedded in the medium, in this case the glass is used for water to drink in large quantity.

Benefit:

It tastes better; it looks better, more clear and transparent; if we drink this water our body uses less energy for adapting the water according to its needs; it can therefore use more of its energy for self-healing and for the regulation of other life processes; used externally, this water has a beneficial influence on the person's mood and skin, vegetables watered with vitalized water grow stronger and maintain a fresh appearance for a longer time; vegetables and fruit washed in vitalized water rapidly regain their freshness; vitalized water can improve the microbiological conditions of water and other aqueous solutions with which it comes into contact; Informed water can help preventing diseases; in farming it helps achieving better yields of farm products without exerting force on nature with artificial compounds; in industry it makes possible a better preparation of water with less chemical substances and energy;

13-Pi Water energizer:

Pi water is water which is extremely similar to water in living body and it is induced from very small quantity of iron (ferric/ furious) ions in their excited state.

System:

This system employs multiple unique layers of filtration combined with magnetism. It is filtration includes coral reef, coral sand, natural active calcium, BCS ceramic and power full magnet. The cluster chains of the H2O are also reducing. It NMR from 128 Hz to reduce it become 53 Hz.

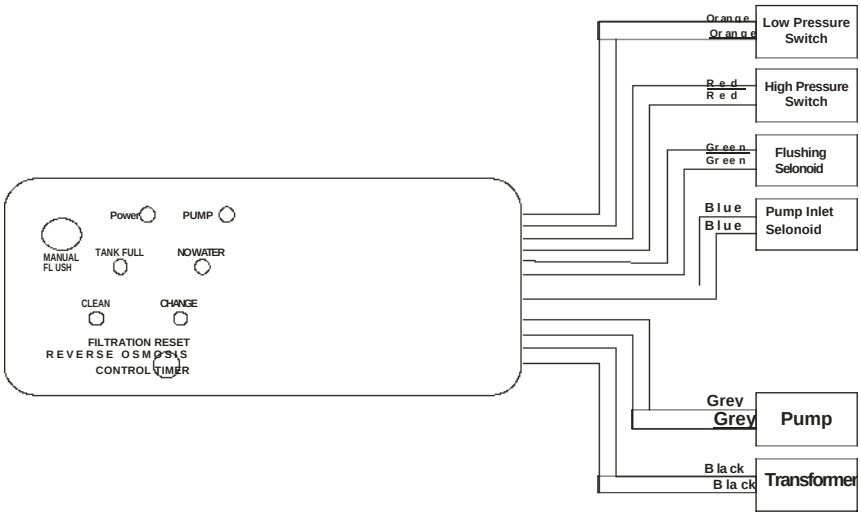
Procedure:

Cartridge of for pi water is divided in three parts in first part is of coral reef, second is of coral sand, third is of bio ceramic which have highly magnetic charge. The passage of flowing water through coral sand and reef and from ceramic balls energizes it.

Benefits:

Promotion for adaptability
Enhance the larger scope of application for temperature and light.
Purification of environment
Improve the quality of bad water and soil
Normal growth
Improvement of living body functions
Improve various body functions
Obtaining regeneration ability
Helps and restore the damages cells and tissue
Inhibition of harmful ions
Metal ions
Inhibition of Pathogenic Organisms Proliferations
Stops viruses
Promotion of growt

Auto Flushing System



Auto Flushing System:

Sequence of Operation

When turn the power on the system intellect the incoming tap water supply pressure through a low pressure switch and if the pressure is in the safe working range the system will start.

Pump inlet solenoid will open
The flushing solenoid will open for 60 seconds and close.

High pressure switch will check the in-let water pressure to ensure the pressure will not crossing the safety limit for the membrane.

System will run until the product tank full signal achieved though the high level switch.

The system will automatically restart when demand signal generate with low level from product tank.

Features:

Auto Flushing

It is the world most modern technologies for RO systems. Built-in the self clearing procedure, so the membrane remains clean. Raw water contains high amount of salt particles. These particles are separated and washed away, continuously, during the normal operation.

A situation may arise, however, when the plant is stopped for a long time for some reason or the other and that there is no water flow. This may result in the settling of some of the

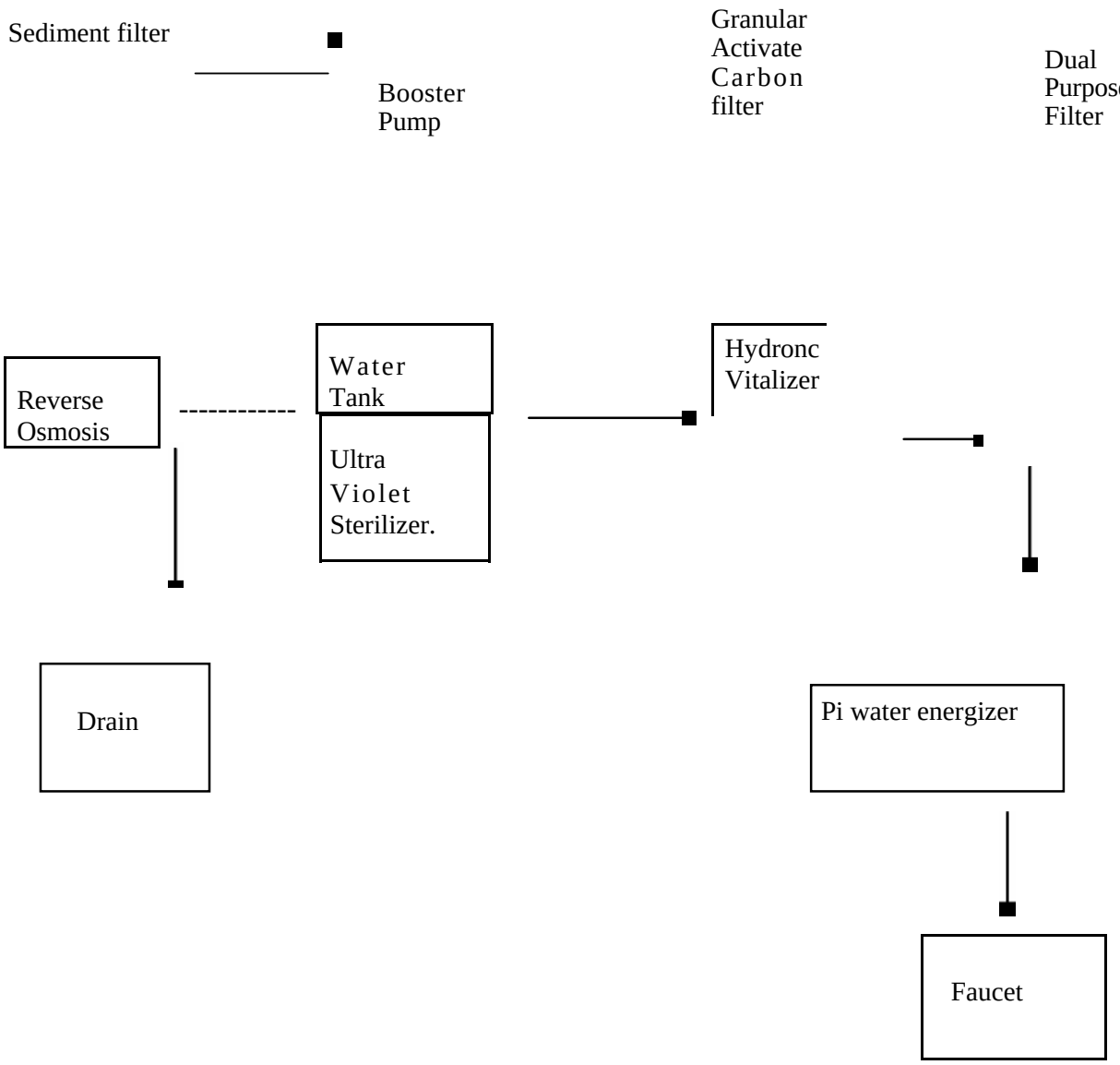
salts on the membrane surfaces. In order to avoid such a situation, the system should be flushed with low pressure water at high velocity so as to ensure that no salt deposits are formed on the membrane surfaces during the period when the plant in not operating. The flushing operation provided in the system is automatic and is carried out every time plant stops or starts during automatic operation mode. More over A manual button is also provided on control panel for any time additional flushing if required.

Manual Flush button to flush the membrane immediately.

Press the “Manual Flush” to flush the membrane immediately to keep its best RO performance. This function can be used when you exchange the pre cartridge filter and want to flush the pre carbon before using the water for food or drinking.

Indicators: shows how it works

Tank Full, System Flush, Pump working Manual Flush, and membrane change indications make it easy to control the RO system and help the user to understand the RO system and will warn the user if operation is affected for any reason.



STAGES OF WATER TREATMENT

1) Pre-filtration (removal of sediments).

2/3) Purification (taste and odor removal; double treatment in 2 stages).

4) Desalination (removal of salts).

5) Polishing and purification (taste and odor improvement and polishing).

REPLACEMENT COMPONENTS (CARTRIDGES)

1) Pre-filtration Unit (1st Stage)

Water is filtered at this stage before it is fed through pump pressure to the second and onward stages.

Filtration rating	:	5 –
micron.		
Cartridge type	:	In-depth filter.
Replacement cartridge	:	WPP105R / SPP105G (So~Safe Products)

2/3) Water Purification Units (2nd and 3rd Stages)

Pumped water is purified in two stages to give odorless and fresh water. All organic pollutants including chlorine are removed from the water in second and third stages.

Cartridge type	:	Taste and odor removal
Replacement cartridges	:	GAC 101 D (2nd stage) (So~Safe Products)
	:	DPC 1 05R (3rd stage) (So~Safe Products)

4) **Reverse Osmosis Unit (4th Stage)**

Filtered and purified water is desalinated in the 4th R.O. Stage. Thin film composite Reverse Osmosis Membrane is installed in the unit for the best permeate water quality and efficient Cross-Flow filtration, where membrane keeps on cleaning itself automatically to ensure a long period. Treated water is stored in the Water Storage Tank from where it can be drawn by turning the faucet valve. Treated water comes out from the faucet after passing through the last Carbon Filter Cartridge (5th stage).

Membrane type	:	Thin film composite (TFC) (FILMTEL OR SO~SAFE PRODUCTS).
Model #	:	TW30-1812-50

Diagram

Microscopic enlargement portion of R.O. Membrane to show the filtration pattern across it

R O PROCESS DIAGRAM

DIAGRAM 1

&

DIAGRAM 2

5) **Water Polishing In-line Carbon Filter Cartridge Unit**

Treatment water is further polished and purified in the 5th stage just before it is drawn for drinking or cooking purpose.

Cartridge type	:	Taste and odor removal and polishing.
Replacement cartridge	:	GAC10ROD (So~Safe PRODUCS)

Enlargement of Activated Carbon Granule to show the absorption of organic pollutants on it.

DIAGRAM

SYSTEM CONTROLLERS

1) Automatic Flush Restrictor.

2) Electronic Shut-off Valve.

3) Tank Level Controller.

4) Low Pressure Switch.

5) Tank Shut-off Switch.

6) Pressure Booster Pump

7) High pressure Switch

POWER SUPPLY

Input : Single phase 220 VAC / 50 Hz. / 110 also available

Output : DC 24V / 1.2A.

WATER TREATMENT PARAMETERS

Water Treatment Capacity : 50 GPD.

Feed Water parameters

Turbidity : 5 NTU (max.).

Chlorine Levels : 0.5 PPM (max.).

Temperature Range : $100^{o}F$ ($38^{o}C$).

Line Pressure Range : 10 to 40 psi.

Total Dissolved Solids : 2000 ppm (max.).

TREATMENT EFFICIENCY RESULTS

Solute	Rejection %
Bicarbonate HCO3	95– 96
Sodium Na	95– 97
Fluoride F	95– 96
Chloride C1	95– 97
Silicate SiO2	95– 97
Nitrate No3	93– 96
Magnesium Mg	96– 98
Nickel Ni	98– 99
Copper Cu	98– 99
Urea	40– 60
Glucose	99+
Sucrose	99+
Bacteria’s & Viruses	99+