

## For Commercial Applications

Job Name \_\_\_\_\_

Contractor \_\_\_\_\_

Job Location \_\_\_\_\_

Approval \_\_\_\_\_

Engineer \_\_\_\_\_

Contractor's P.O. No. \_\_\_\_\_

Approval \_\_\_\_\_

Representative \_\_\_\_\_

# Series PWR4011

## Commercial Reverse Osmosis Systems

**Flow Rates: Up to 5,400 gpd (20,439 lpd)**

Watts Pure Water Series PWR4011 reverse osmosis (RO) systems are commercial grade low-energy RO units for the reduction of total dissolved solids from water. They are designed to supply reverse osmosis quality water with production rates ranging from 1,800 to 5,400 gallons per day. These units are designed for wall mount installations. Reverse osmosis is a process where high-pressure feed water is fed into a semi-permeable membrane. In the membrane, pure water is allowed to pass through the membrane material and exit as purified permeate water. Dissolved mineral salts are not allowed to pass through the membrane and become a concentrated reject stream that is sent to a drain. These RO systems use low-energy membranes to achieve a minimum average NaCl ionic rejection of 95 percent.

Watts Pure Water Series PWR4011 RO systems are a well designed, rugged line of purifiers with high-pressure piping constructed of stainless steel. This series comes with a pre-selected assortment of features for monitoring and operation. Stainless steel membrane housings and high-pressure piping, inlet and outlet pre-filter pressure gauges, low-pressure switch with delayed auto restart, inputs for tank level and pretreatment interlock, adjustable reject recycle, permeate and reject water flow meters, permeate water check valve, inlet solenoid valve, membrane feed water pressure gauge, and adjustable reject valve are all standard features. These systems are designed to feed an atmospheric storage tank for collection of the reverse osmosis water. Reverse osmosis water has a wide variety of applications including municipal water treatment, steam boiler and steam sterilizer make up, laboratory use, spot free rinsing, ice and beverage water, water for cooking, food processing, metal plating and finishing, as well as water for humidification. Reverse osmosis is also the pretreatment of choice for ion exchange type de-ionization (DI) systems. Using RO water as make up to a DI system reduces the exhaustion rate of the DI resin by up to 95 percent saving time, money, and chemicals associated with DI resin regeneration.

**Note:** Do not use with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.

# PURE WATER



Series PWR4011

### Features

- Stainless steel high-pressure piping
- 304 stainless steel wall mounted support frame
- 316L stainless steel 300psi high-pressure membrane housings
- Pressure gauges for pre-filter inlet/outlet and membrane feed pressure
- Low feed water pressure safety switch
- Microprocessor based controller with delayed auto restart after low-pressure shut down
- Tank level and pretreatment interlock inputs
- Low-energy membranes with 95% minimum average salt rejection
- Permeate and reject water flow meters
- Adjustable reject and reject recycle valves
- Permeate check valve
- Automatic inlet solenoid valve
- 10" high flow pre-filter

### Standards

- Pre-filter Housing NSF/ANSI Certified 42

## Specifications

A Watts Pure Water Series PWR4011 reverse osmosis system shall be installed to provide reverse osmosis quality water. The RO system shall be installed after a Series PWS water softener so that scale forming calcium and magnesium hardness cannot scale the RO membrane(s). Series PWC backwashing carbon filter shall be installed on the RO feed water line to remove chlorine and prevent membrane degradation due to chlorine attack. Series PWM backwashing sediment filter shall also be installed on the RO feed water line to reduce the silt density index of the water to prevent particulate fouling of the RO membrane(s).

The RO system shall be a low-energy type unit complete with permeate and reject water flow meters, pre-filter inlet/outlet and membrane feed water pressure gauges, 316L stainless steel membrane housings, automatic inlet solenoid valve, stainless steel high-pressure piping, low feed water pressure switch, reject and recycle valves, storage tank level and pretreatment interlock inputs, micro electronic controller, multistage centrifugal high-pressure pump, and all other components necessary for proper operation. The system shall be a wall mount design. The RO permeate water shall be collected in an atmospheric storage tank with the tank level controlled by an electronic level float. The RO shall be equipped with inputs for the tank level float as well as pretreatment interlock to shut the RO system down in the event the pretreatment begins a backwash cycle. Electrical requirements are 230 volt 60 hertz single phase. A local drain is required to accept drain water from the system. The feed water pressure must not fall below 20psi. The feed water temperature must not fall below 35°F or exceed 100°F (2° - 38°C).

The system shall produce reverse osmosis quality water with 95 percent minimum average ionic rejection of total dissolved solids when operated within the manufacturer's operational specifications.

## Feed Water Guidelines

pH	6 to 9
Hardness (maximum)	Less than 1 grain per gallon as CaCO <sub>3</sub> (Softened) or anti scale chemical injection if not softened (contact your Watts representative)
Feed Water Pressure (minimum)	20psi
Temperature	35 - 100°F (2 - 38°C)
Free Chlorine (maximum)	None Allowed
Iron (maximum)	Less than .1mg/L
Oil and H <sub>2</sub> S	None Allowed
Turbidity	Less than 1.0 NTU
Silt Density Index	Less than 5.0 SDI

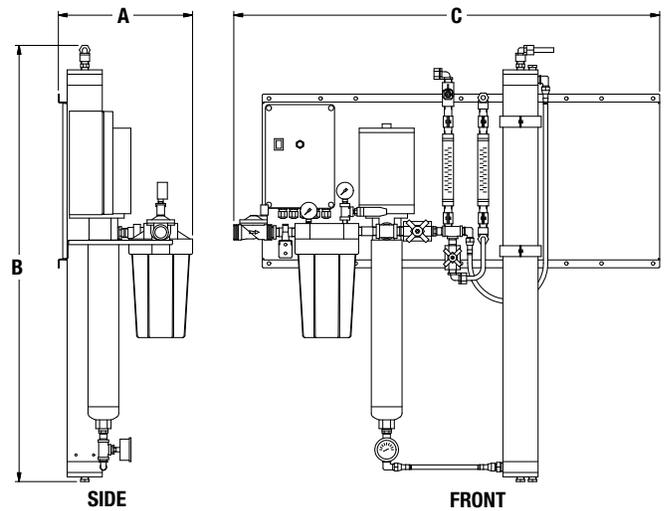
### Notes:

- For all other guideline information please contact your Watts representative.
- Published maximum production rates are based on a feed water of 77°F, SDI of less than 3, 1000 ppm TDS, and pH 8.
- Individual membrane productivity may vary (± 15%). May be operated on other feed waters with reduced capacity.
- Percent rejection is based on membrane manufacturer's specifications; overall system percent rejection may be less.



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## Dimensions - Weights



MODEL NO.	DIMENSIONS						WEIGHTS	
	A		B		C		lbs.	kg
	in.	mm	in.	mm	in.	mm		
PWR40113012	16	406	50	1270	48	1219	200	91
PWR40113022	16	406	50	1270	48	1219	250	114
PWR40113032	16	406	50	1270	48	1219	300	136

## Performance

Maximum Productivity (gallons per day)	1800	3600	5400
Quality (typical membrane percent rejection)	98 %	98 %	98 %
Recovery (adjustable)	15 - 75 %	25 - 75 %	35 - 75 %
Membrane Size	4" x 40"		
Number Of Membranes	1	2	3
Prefilter (system ships with one 5 micron cartridge)	10" BB		
Feed Water Connection	1" NPT		
Product Water Connection (tubing OD)	1/2"	1/2"	5/8"
Reject Water Connection (tubing OD)	1/2"		
Feed Water Required (at 50% recovery)	2.5 gpm	5 gpm	7.5 gpm
Feed Water Pressure (minimum)	20 psi		
Drain Required (maximum)	10 gpm		
Electrical Requirement (other voltages available)	230 VAC 60 Hz 6 amps	230 VAC 60 Hz 6 amps	230 VAC 60 Hz 9 amps
Motor Horse Power	1	1	1.5
Dimensions L x H x D (approximate)	41" x 51" x 18"		

## Ordering Information

MODEL NO.	DESCRIPTION
PWR40113012	1800 gallon per day RO with stainless steel valves and fittings
PWR40113022	3600 gallon per day RO with stainless steel valves and fittings
PWR40113032	5400 gallon per day RO with stainless steel valves and fittings



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