

## For Commercial Applications

Job Name \_\_\_\_\_  
 Job Location \_\_\_\_\_  
 Engineer \_\_\_\_\_  
 Approval \_\_\_\_\_

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

# Series PWR4021

## Commercial Reverse Osmosis Systems

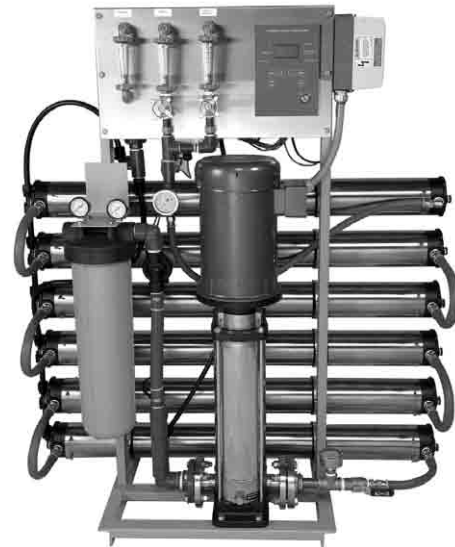
**Flow Rates: Up to 10,800 gpd (40,878 lpd)**

Watts Pure Water Series PWR4021 reverse osmosis (RO) systems are commercial grade high-pressure 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 3,600 to 10,800 gallons per day (40,878 lpd). These units are designed for floor 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 high-pressure/high-rejection membranes to achieve a minimum average NaCl ionic rejection of 95 percent.

Watts Pure Water Series PWR4021 RO systems are a well designed, rugged line of purifiers. This series comes with a pre-selected assortment of features, including our digital controller, for monitoring and operation. Stainless steel membrane housings, inlet and outlet pre-filter pressure gauges, low-pressure switch with delayed auto restart, inputs for tank level and pretreatment interlock, conductivity meter, high-conductivity alarm output, adjustable reject recycle, permeate and reject water flow meters, reject recycle flow meter, permeate water check valve, inlet solenoid valve, membrane feed and reject water pressure gauges, auto flush, 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 PWR4021

### Features

- Membrane Auto Flush
- Powder coated carbon steel support frame
- 316L stainless steel 300psi high-pressure membrane housings
- Pressure gauges for pre-filter inlet/outlet, membrane feed, and reject water pressure
- Low feed water pressure safety switch
- Digital microprocessor based controller with delayed auto restart after low-pressure shut down
- Permeate water conductivity meter with high-conductivity alarm output
- Tank level and pretreatment interlock inputs
- High-pressure/high-rejection membranes with 95% minimum average salt rejection
- Permeate, reject recycle, and reject water flow meters
- Adjustable reject and reject recycle valves
- Permeate check valve
- Automatic inlet solenoid valve
- 20" high flow pre-filter

### Standards

- Pre-filter Housing NSF/ANSI Certified 42

Watts product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Watts Technical Service. Watts reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Watts products previously or subsequently sold.

# WATTS®

Specifications

Watts Pure Water Series PWR4021 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 membranes. 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 membranes.

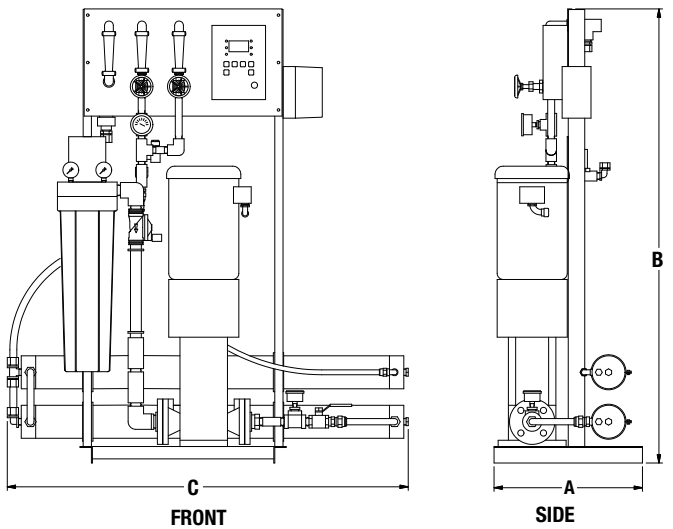
The RO system shall be a high-pressure/high-rejection type unit complete with permeate and reject water flow meters, reject recycle water flow meter, 316L stainless steel membrane housings, pre-filter inlet and outlet pressure gauges, membrane feed and reject water pressure gauges, automatic inlet solenoid valve, low feed water pressure switch, reject and recycle valves, digital controller with conductivity meter and high-conductivity alarm output, storage tank level and pretreatment interlock inputs, 5 horse power multistage centrifugal high-pressure pump, and all other components necessary for proper operation. The system shall be a floor 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 three 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 CaCO3 (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 H2S . . . . . None Allowed
- Turbidity . . . . . Less than 1.0 NTU
- Silt Density Index . . . . . Less than 5.0 SDI

Dimensions - Weights



MODEL NO.	DIMENSIONS						WEIGHTS	
	A		B		C		lbs.	kg
	in.	mm	in.	mm	in.	mm		
PWR40213023	18	457	56 <sup>5</sup> / <sub>16</sub>	1430	50	1270	400	182
PWR40213033	18	457	56 <sup>5</sup> / <sub>16</sub>	1430	50	1270	500	227
PWR40213043	18	457	56 <sup>5</sup> / <sub>16</sub>	1430	50	1270	600	273
PWR40213053	18	457	56 <sup>5</sup> / <sub>16</sub>	1430	50	1270	700	318
PWR40213063	18	457	56 <sup>5</sup> / <sub>16</sub>	1430	50	1270	800	364

## Performance

Maximum Productivity (gallons per day)	3600	5400	7200	9000	10,800
Quality (typical membrane percent rejection)	98 %				
% Recovery (adjustable)	25 - 75	36 - 75	42 - 75	46 - 75	50 - 75
Membrane Size	4" x 40"				
Number Of Membranes	2	3	4	5	6
Prefilter (systems ship with one 5 micron cartridge)	20" BB				
Feed Water Connection	1" FNPT				
Product Water Connection	¾" FNPT				
Reject Water Connection	¾" FNPT				
Feed Water Required (GPM at 50% recovery)	5	7.5	10	12.5	15
Feed Water Pressure (minimum)	20 psi				
Drain Required (maximum)	15 gpm				
Electrical Requirement (other voltages available)	230 VAC, 3-phase, 60 Hz, 15 amps				
Motor Horse Power	5				
Dimensions L x W x H (approximate)	60" x 18" x 56"				
Shipping Weight (estimated pounds)	400	500	600	700	800

### 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 ( $\pm$  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.

## Ordering Information

MODEL NO.	DESCRIPTION
PWR40213023	3600 GPD Reverse Osmosis System with Micro Processor Control and Auto Flush
PWR40213033	5400 GPD Reverse Osmosis System with Micro Processor Control and Auto Flush
PWR40213043	7200 GPD Reverse Osmosis System with Micro Processor Control and Auto Flush
PWR40213053	9000 GPD Reverse Osmosis System with Micro Processor Control and Auto Flush
PWR40213063	10,800 GPD Reverse Osmosis System with Micro Processor Control and Auto Flush



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