

## For Commercial Applications

# Series R12

## Commercial Reverse Osmosis Systems

**Flow Rates: Up to 1,200 gpd (4,542 lpd)**

Watts Series R12 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 150 to 1,200 gallons per day. The standard units are designed for wall mounting. Where floor mounting is preferred, the optional floor mounting kit Model No. R2864 can be specified. 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-rejection membranes to achieve a minimum average NaCl ionic rejection of 95 percent.

Series R12 RO systems are a time-tested line of purifiers engineered with quality and durability in mind. This series comes with a pre-selected assortment of features for monitoring and operation. Fiberglass reinforced plastic membrane housings, inlet and outlet pre-filter pressure gauges, low-pressure switch with delayed auto restart, permeate pressure switch, 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. The standard systems are designed to feed an atmospheric storage tank or a pressurized bladder tank. 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.

### ⚠ WARNING

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



**Series R12**

### Features

- 304 stainless steel wall mounted support frame
- Fiberglass reinforced plastic 300 psi 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
- High-pressure/high-rejection membranes with 95% minimum average salt rejection
- Permeate and reject water flow meters
- Adjustable reject and reject recycle valves
- Permeate pressure switch and check valve
- Automatic inlet solenoid valve
- Tank level input
- Pretreatment interlock input

### Standards

- Pre-filter Housing NSF/ANSI Certified 42
- Pre-filter Cartridge NSF/ANSI Certified 42

## Specifications

A Series R12 reverse osmosis system shall be installed to provide reverse osmosis quality water. The RO system shall be installed after a Series LC(TA) or HC(TA) water softener so that scale forming calcium and magnesium hardness cannot scale the RO membrane(s). A Series AC backwashing carbon filter shall be installed on the RO feed water line to remove chlorine and prevent membrane degradation due to chlorine attack. A Series AMZ 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 high-pressure/high-rejection type unit complete with permeate and reject water flow meters, pre-filter inlet/outlet and membrane feed water pressure gauges, fiberglass reinforced plastic membrane housings, automatic inlet solenoid valve, low feed water pressure switch, permeate water pressure switch, reject and recycle valves, micro electronic controller, high-pressure pump, and all other components necessary for proper operation. The system shall be a wall mount design with an optional leg kit for floor mount installations. The RO permeate water shall be collected in an atmospheric storage tank or a pressurized bladder tank. A permeate water pressure switch is provided on the RO system for automatic on/off operation when using a pressurized bladder tank. Electrical requirements are 120 volt 60 hertz. 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

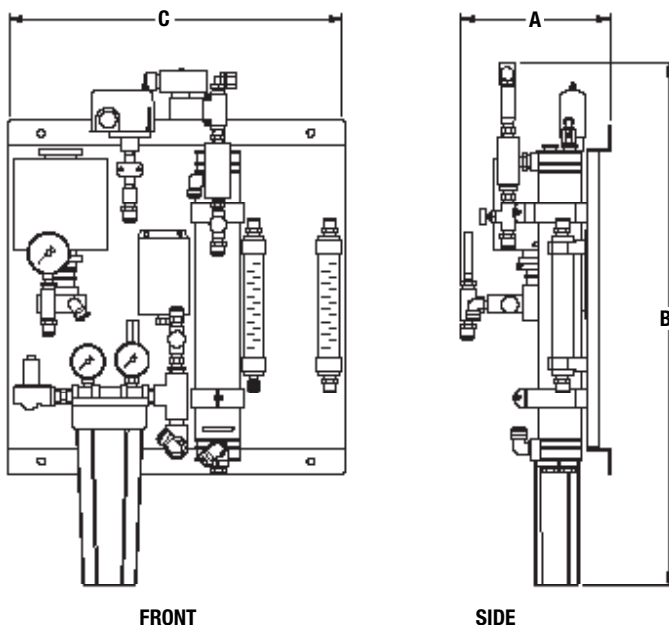
Oil and H<sub>2</sub>S ..... None Allowed

Turbidity ..... Less than 1.0 NTU

Silt Density Index ..... Less than 5.0 SDI

For all other guideline information please contact your Watts representative.

## Dimensions - Weights



MODEL NO.	DIMENSIONS						WEIGHTS	
	A		B		C		lbs.	kgs.
	in.	mm	in.	mm	in.	mm		
R12-0150-2	9	229	30	762	21	533	50	23
R12-0250-2	9	229	32	813	21	533	50	23
R12-0600-2	9	229	47	1194	21	533	60	27
R12-1200-2	9	229	47	1194	21	533	70	32

## Performance

Maximum Productivity (gallons per day)	150	250	600	1200
Quality (average membrane rejection)	98 %	98 %	98 %	98 %
Recovery (user adjustable)	15 - 75 %	15 - 75%	15 - 75 %	25 - 75 %
Membrane Size	2.5" x 14"	2.5" x 21"	2.5" x 40"	2.5" x 40"
Number Of Membranes	1	1	1	2
Prefilter (system ships with one 5 micron cartridge)	10"			
Feed Water Connection	½" NPT			
Product Water Connection (tubing OD)	¾"			
Reject Water Connection (tubing OD)	¾"			
Feed Water Required (maximum)	2.4 gpm			
Feed Water Pressure (minimum)	20psi			
Drain Required (maximum)	2.4 gpm			
Electrical Requirement	120 VAC 60 Hz 8 amps			
Motor Horse Power	½			
Dimensions W x H x D (approximate)	22" x 32" x 12"		22" x 52" x 12"	
Shipping Weight (estimated pounds)	50	50	60	70

### NOTICE

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
R12-0150-2	150 Gallon Per Day Reverse Osmosis System
R12-0250-2	250 Gallon Per Day Reverse Osmosis System
R12-0600-2	600 Gallon Per Day Reverse Osmosis System
R12-1200-2	1200 Gallon Per Day Reverse Osmosis System
R2864	Optional Stainless Steel Leg Kit For All Models

### NOTICE

The information contained herein is not intended to replace the full product installation and safety information available or the experience of a trained product installer. You are required to thoroughly read all installation instructions and product safety information before beginning the installation of this product.

