

## For Commercial Applications

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

Contractor \_\_\_\_\_

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

Approval \_\_\_\_\_

Engineer \_\_\_\_\_

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

Approval \_\_\_\_\_

Representative \_\_\_\_\_

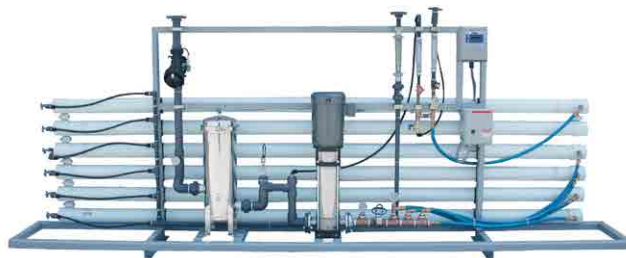
# Series R44

## Commercial Reverse Osmosis Systems

### Flow Rates: Up to 30 gpm (113 lpm)

Watts Series R44 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 20 to 30 gallons per minute. 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 97 percent.

Series R44 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, including our digital controller for monitoring and operation. Corrosion resistant fiber-glass reinforced plastic (FRP) 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 diaphragm 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.



Series R44

### Features

- Powder coated carbon steel support frame
- Corrosion resistant 300psi FRP high-pressure membrane housings
- Pressure gauges for pre-filter inlet/outlet, membrane feed, and reject water pressure
- Low feed water pressure safety switch with auto restart
- Electronic controller with product water conductivity meter
- Tank level and pretreatment interlock inputs
- High-pressure/high-rejection membranes with 97% minimum average salt rejection
- Permeate, reject recycle, and reject water flow meters
- Adjustable reject and reject recycle valves
- Permeate check valve
- Automatic inlet diaphragm valve
- 90 gallon per minute high flow 316 stainless steel pre-filter

#### ⚠ WARNING

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

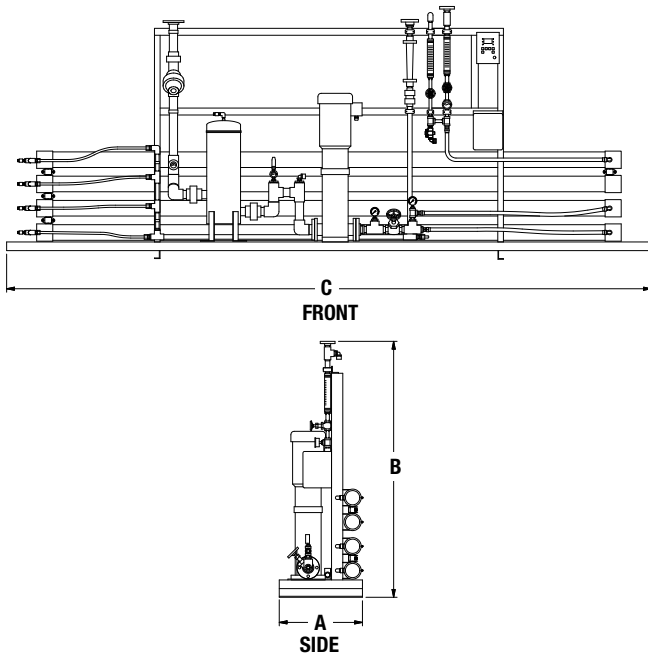
## Specifications

A Series R44 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. 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.

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, pre-filter inlet and outlet pressure gauges, membrane feed and reject water pressure gauges, FRP membrane housings, automatic inlet diaphragm 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, 10 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 (2-39°C).

The system shall produce reverse osmosis quality water with 97 percent minimum average ionic rejection of total dissolved solids when operated within the manufacturer's operational specifications.

## Dimensions - Weights



MODEL NO.	DIMENSIONS						WEIGHTS	
	A		B		C		lbs	kg
	in.	mm	in.	mm	in.	mm		
R44-16-1131100	26	660	75	1905	186	4724	1400	636
R44-20-1131100	26	660	75	1905	186	4724	1600	727
R44-24-1131100	26	660	75	1905	186	4724	1800	818



## 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

### 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 (± 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.

## Performance

Maximum Productivity (gallons per minute)	20	25	30
Quality (typical membrane percent rejection)	98%		
Recovery (adjustable)	65% - 75%		
Membrane Size	4" x 40"		
Membrane Array (four elements per vessel)	2:2	3:2	4:2
Prefilter (system ships with five micron cartridges)	7 round x 20"		
Feed Water Connection	2" Flange		
Product Water Connection	1.5" Flange		
Reject Water Connection	1" Flange		
Feed Water Required (GPM at 65% recovery)	31	39	46
Minimum Feed Water Pressure	20 psig		
Drain Required (maximum)	31	39	46
Electrical Requirement (other voltages available)	230 VAC, 3-phase, 60 Hz, 30 amps		
Motor Horse Power / Type	10 / TEFC		
Dimensions W x D x H (approximate)	186" x 26" x 75"		
Shipping Weight (estimated pounds)	1400	1600	1800

## Ordering Information

Model No.	Description
R44-16-1131100	20 GPM Reverse Osmosis System with Micro Processor Controller and Auto Flush
R44-20-1131100	25 GPM Reverse Osmosis System with Micro Processor Controller and Auto Flush
R44-24-1131100	30 GPM Reverse Osmosis System with Micro Processor Controller and Auto Flush

### 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.