Engineering Specification

Job Name _____ Contractor _____

Job Location _____ Approval _____

Engineer _____ Contractor's P.O. No. _____

Approval _____ Representative _____

Series RX-40

Light Commercial Reverse Osmosis Systems

Connection Size: ¾"
Max. Productivity: 2500, 5000 and 7500 gpd

Watts Series RX-40 reverse osmosis (RO) systems are light 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 2500 to 7500 gallons per day. 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, quality water is allowed to pass through the membrane material and exit as 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 nominal average NaCl ionic rejection of 98 percent.

Series RX-40 RO systems are a time-tested line of reverse osmosis systems engineered with quality and durability in mind. This series comes with a pre-selected assortment of features, including our digital controller, with built-in conductivity meter for control and monitoring. Corrosion resistant fiberglass reinforced plastic (FRP) membrane housings, inlet and outlet pre-filter pressure gauges, low-pressure switch with programmable delayed auto restart, inputs for tank level and pretreatment interlock, built-in conductivity meter, high-conductivity alarm output, adjustable reject and recycle, permeate recycle and reject water flow meters, permeate water check valve, inlet solenoid valve, membrane feed and reject water pressure gauges, programmable 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.

⚠ WARNING

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

NOTICE

For indoor installation only.

RX-4040-03-1

Features

- Built-in Feed and Permeate Water Conductivity meter with high conductivity alarm output
- Ultra low energy membranes, 98% nominal salt rejection
- Membrane Auto Flush
- Powder coated steel support frame
- Corrosion resistant 300 psi FRP high-pressure membrane housings
- Pressure gauge for pre-filter pump discharge
- Low feed water pressure safety switch
- Digital microprocessor based controller with 4 line, 20 character LCD backlit display
- 20" prefilter
- Multistage centrifugal pump
- Tank level and pretreatment interlock inputs
- Permeate, reject recycle, and reject water flow meters
- Adjustable reject and reject recycle valves
- Permeate check valve
- Automatic inlet solenoid valve
- Dedicated outlet from RO panel for chemical feed control

Specifications

A Series RX-40 reverse osmosis system shall be installed to provide reverse osmosis quality water. For pre-treatment considerations, a water softener can be installed to prevent scale formation by removing calcium and magnesium hardness, ensuring they do not accumulate on the RO membranes. As an alternative, an antiscalant chemical dosing system can be installed before the RO unit to prevent certain types of scale and fouling. A backwashing carbon filter can be used to remove chlorine, protecting the membranes from degradation caused by chlorine exposure. Additionally, a backwashing sediment filter can be installed to reduce the Silt Density Index (SDI), minimizing particulate fouling of the RO membranes. For detailed chemical selection and equipment sizing, please consult a Watts Technician.

The RO system shall be a low-energy/high-rejection type unit complete with all 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 120-230 VAC 60 Hz, 1 PH (only RX-4040-03-1 requires 220V). A local drain is required to accept drain water from the system. The feed water pressure must not fall below 1 psi. The feed water temperature must not fall below 40°F or exceed 85°F (4-29°C).

The system shall produce reverse osmosis quality water with 98% nominal average ionic rejection of total dissolved solids when operated within the manufacturer's operational specifications.

Feed Water Guidelines

pH	4 to 10
Hardness (maximum)	Less than 1 grain per gallon as $CaCO_3$ (Softened) preferred 0 or anti scale chemical injection if not softened (contact your Watts representative)
Feed Water Pressure (minimum)	10 psi
Temperature	40-85°F (4-29°C)
Free Chlorine (maximum)	None Allowed
Iron (maximum)	Less than .1mg/L
Oil and H_2S	None Allowed
Turbidity	Less than 1.0 NTU
Silt Density Index	Less than 5.0 SDI preferred < 3 SDI

NOTICE

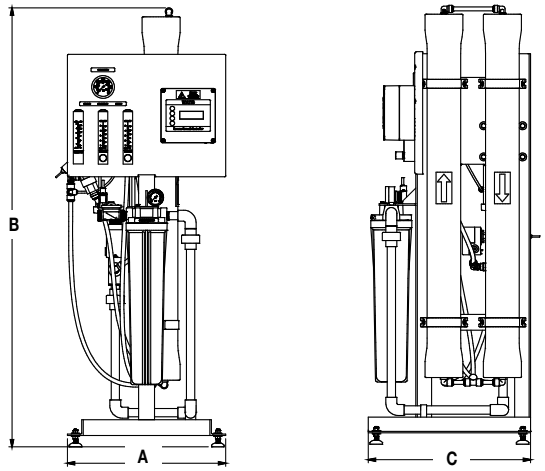
For all other guideline information please contact your Watts representative. Published maximum production rates are based on a feed water of 77°F, SDI of less than 3,550 ppm TDS, and pH 7 with a feed pressure of 100 psi. Individual membrane productivity may vary (± 15%). May be operated on other feed waters with reduced capacity.

Percent rejection is based on membrane manufacturer's specifications; overall system percent rejection may be less.

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.

Dimensions - Weights



FRONT SIDE

Call customer service if you need assistance with technical details.

MODEL	DIMENSIONS A		B		C		WEIGHT	
	In.	*mm*	*In.*	*mm*	*In.*	*mm*	*lb*	*kg*
RX-4040-01-1	20	508	56	1422	22	559	120	54.4
RX-4040-02-1	20	508	56	1422	22	559	150	68.0
RX-4040-03-1	20	508	56	1422	26	660	180	81.6

Performance

	RX-4040-01-1	RX-4040-02-1	RX-4040-03-1
Order code	68111204	68111205	68111206
Maximum Productivity (gallons per day)	2500	5000	7500
Quality (average membrane rejection)	98% (min. 96%)		
Recovery (user adjustable)	up to 75%		
Membrane Size	4" x 40"		
Number Of Membranes	1	2	3
Prefilter (system ships with one 5 micron cartridge)	20"		
Feed Water Connection	¾" NPTF		
Product Water Connection (tubing ID)	⅝"		
Reject Water Connection (tubing ID)	⅝"		
Permeate Water (maximum)	1.74 gpm	3.47 gpm	5.21 gpm
Minimum Concentrate Flow	3 gpm		
Feed Water Pressure (minimum)	10 psi		
Electrical Requirement	110V 12 amps		230V 15 amps
Motor Horse Power	1		1½
Dimensions W x D x H (approximate inches)	20 x 22 x 56		20 X 26 X 56
Shipping Weight (estimated pounds)	120	150	180

Applications

- Whole house
- Boiler feed water
- Humidifiers
- Greenhouses
- Process Water
- Car wash spot-free

USA: T: (800) 659-8400 • Watts.com
Canada: T: (905) 332-4090 • Watts.ca
Latin America: T: (52) 55-4122-0138 • Watts.com