Engineering Specification

Job Name _____ Contractor _____

Job Location _____ Approval _____

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

Approval _____ Representative _____

Series PWHC40

Heavy Commercial Reverse Osmosis Systems

Connection Size: 1"
Max. Productivity: 2000 GPD to 24K GPD

WATTS pure water

PWHC4040121

Watts Series PWHC40 reverse osmosis (RO) systems are heavy 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 2000 to 24K 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 PWHC40 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, high-pressure switch for system protection inputs, 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, pump feed throttle globe 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.

Features

- Built-in Permeate Water Conductivity meter with high conductivity alarm output
- Ultra low energy membranes, 98% nominal salt rejection
- Membrane Auto Flush
- Powder coated aluminum 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 2 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

Optional Features

- Feed blending valve
- Permeate sampling port
- Various power option: 220VAC 3PH 50Hz, 380VAC 3PH 50Hz, 460VAC 3PH 60Hz

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Specifications

A Series PWHC40 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 220 VAC 60 Hz, 1 PH with optional power available. 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)	45 psi
Temperature	40-85°F (4-29°C)
Free Chlorine (maximum)	None Allowed
Iron (maximum)	Less than 0.1 mg/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

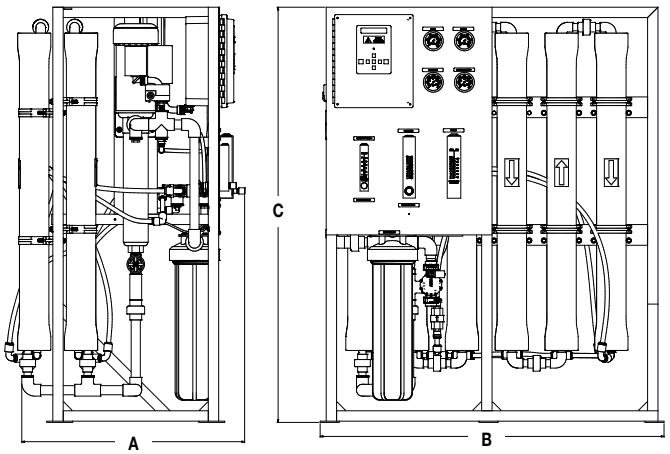
For all other guideline information please contact your Watts representative. Published maximum production rates are based on a feed water of 77°F, SDI of less than 3,550 ppm TDS, and pH 7 with a feed pressure of 100 psi. Individual membrane productivity may vary (± 15%). May be operated on other feed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



SIDE **FRONT**

Call customer service if you need assistance with technical details.

MODEL	DIMENSIONS A		B		C		WEIGHT	
	In.	*mm*	*In.*	*mm*	*In.*	*mm*	*lb*	*kg*
PWHC4040011	26	660	26	660	60	1524	250	113
PWHC4040021	26	660	26	660	60	1524	290	132
PWHC4040031	26	660	26	660	60	1524	330	150
PWHC4040041	32	813	26	660	60	1524	370	168
PWHC4040051	32	813	26	660	60	1524	430	195
PWHC4040061	32	813	26	660	60	1524	470	213
PWHC4040081	32	813	50	1270	60	1524	540	245
PWHC4040101	32	813	50	1270	60	1524	620	281
PWHC4040121	32	813	50	1270	60	1524	700	318

Performance

	PWHC4040011	PWHC4040021	PWHC4040031	PWHC4040041	PWHC4040051	PWHC4040061	PWHC4040081	PWHC4040101	PWHC4040121
Order code	7101133	7101134	7101135	7101136	7101137	7101138	7101139	7101140	7101141
Maximum Productivity (gallons per day)	2000	4000	6000	8000	10K	12K	16K	20K	24K
Quality (average membrane rejection)	98% (min. 96%)								
Recovery (user adjustable)	up to 75%								
Membrane Size	4" x 40"								
Number Of Membranes	1	2	3	4	5	6	8	10	12
Vessel Array	1	1:1	1:1:1	1:1:1:1	1:1:1:1:1	2:2:2	2:2:2:2	2:2:2:2:2	2:2:2:2:2:2
Prefilter (system ships with one 5 micron cartridge)	20"								
Feed Water Connection	1" FNPT								
Product Water Connection	3/4" FNPT			1" FNPT					
Reject Water Connection	3/4" FNPT			1" FNPT					
Permeate Water (maximum)	1.4 gpm	2.8 gpm	4.2 gpm	5.6 gpm	7.0 gpm	8.4 gpm	11.2 gpm	14 gpm	16.8 gpm
Minimum Concentrate Flow	3 gpm					6 gpm			
Feed Water Pressure (minimum)	45 psi								
Electrical Requirement	220V, 60Hz, 1pH, 8.8A				220V, 60Hz, 1pH, 16A				
Motor Horse Power	1.5				3				
Dimensions W x D x H (approximate inches)	26 x 26 x 60			32 x 26 x 60			32 x 50 x 60		
Shipping Weight (estimated pounds)	250	290	330	370	430	470	540	620	700

Applications

- Food & beverage
- Pharmaceuticals & medical
- Hotels, hospitals, universities
- Boiler feed water
- Municipal water treatment
- Mining water
- Agriculture & hydroponics

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