

Engineering Specification

Job Name _____
 Job Location _____
 Engineer _____
 Approval _____

Contractor _____
 Approval _____
 Contractor's P.O. No. _____
 Representative _____

Series LC-40

Light Commercial Reverse Osmosis Systems

Connection Size: 1"

Max. Productivity: 2500, 5000, 7500, 10K, 15K
and 20K gpd

Watts Series LC-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 20K 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 LC-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, high-pressure switch for system protection, 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, 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.



LC-4040-08-1

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 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

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.



Specification

A Series LC-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 220 VAC 60 Hz, 1 PH. 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 0.1mg/L
Oil and H ₂ S	None Allowed
Turbidity	Less than 1.0 NTU
Silt Density Index	Less than 5.0 SDI preferred < 3 SDI

NOTICE

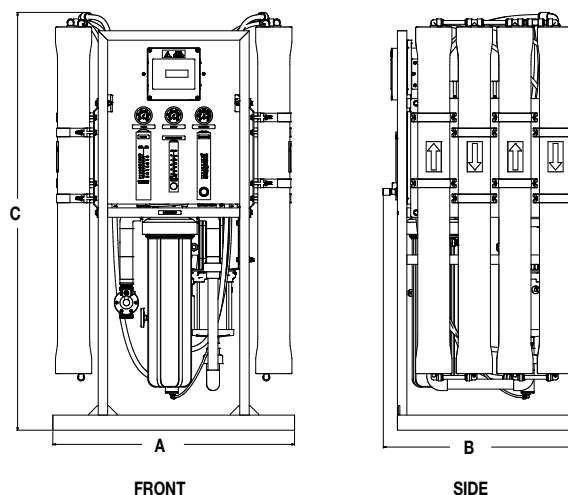
For all other guideline information please contact your Watts representative. Published maximum production rates are based on a feed water of 77°F, SDI of less than 3,550 ppm TDS, and pH 7 with a feed pressure of 100 psi. Individual membrane productivity may vary (± 15%). May be operated on other feed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



Call customer service if you need assistance with technical details.

MODEL	DIMENSIONS						WEIGHT	
	A		B		C			
		<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>in.</i>	<i>mm</i>	<i>lb</i>
LC-4040-01-1	25	635	16	406	55	1397	120	54.4
LC-4040-02-1	25	635	16	406	55	1397	150	68.0
LC-4040-03-1	32	813	24	610	55	1397	180	81.6
LC-4040-04-1	32	813	24	610	55	1397	210	95.3
LC-4040-06-1	32	813	24	610	55	1397	270	122.5
LC-4040-08-1	32	813	24	610	55	1397	330	149.7

Performance

	LC-4040-01-1	LC-4040-02-1	LC-4040-03-1	LC-4040-04-1	LC-4040-06-1	LC-4040-08-1
Order code	68111207	68111208	68111209	68111210	68111211	68111212
"Maximum Productivity (gallons per day) "	2500	5000	7500	10K	15K	20K
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	6	8
Vessel Array	1	1:1	1:1:1	1:1:1:1	2:2:2	2:2:2:2
"Prefilter (system ships with one 5 micron cartridge) "	20"					
Feed Water Connection	1" FNPT					
Product Water Connection	1/2" QC			1" FNPT		
Reject Water Connection	1/2" QC			1" FNPT		
Permeate Water (maximum)	1.74 gpm	3.47 gpm	5.21 gpm	6.94 gpm	10.42 gpm	13.89 gpm
Minimum Concentrate Flow	3 gpm				6 gpm	
Feed Water Pressure (minimum)	45 psi					
Electrical Requirement	220V, 60Hz, 1pH, 8.5A		220V, 60Hz, 1pH, 11A			
Motor Horse Power	1.5		2			
"Dimensions W x D x H (approximate inches) "	25 x 16 x 55		32 x 24 x 55			
Shipping Weight (estimated pounds)	120	150	180	210	270	330

Applications

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

