

## Engineering Specification

Job Name \_\_\_\_\_  
 Job Location \_\_\_\_\_  
 Engineer \_\_\_\_\_  
 Approval \_\_\_\_\_

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

# Series PWHC80

## Heavy Commercial Reverse Osmosis Systems

**WATTS®**  
 pure water

Connection Size: 2" - 4"

Max. Productivity: 22 GPM to 238 GPM

Watts Series PWHC80 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 22 to 238 gallons per minute. These units are designed for floor-sitting 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 99.1%.

Series PWHC80 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. If more complex control and monitoring is required, an advanced controller is available as optional upgrade. 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, permeate and reject water flow meters (flow sensors will be utilized for PWHC8040062 and bigger units), permeate water check valve, inlet solenoid valve /motorized feed valve, pump feed throttle globe valve, membrane feed and reject water pressure gauges, programmable auto flush, and adjustable reject valve are all standard features.

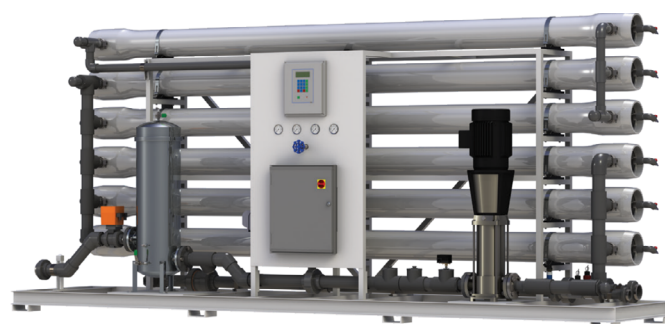
These systems are designed to feed an atmospheric storage tank for collection of the reverse osmosis water, or they can be directed directly to distribution line. Reverse osmosis water has a wide variety of applications including municipal water treatment, steam boiler and steam sterilizer make up, laboratory 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.



PWHC8040076

### Features

- Built-in Feed and Permeate Water Conductivity meter with high conductivity alarm output
- Low energy heavy duty brackish membranes, 99.1% nominal salt rejection. 440 sqft
- Membrane Auto Flush
- Powder coated carbon 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 2 line, 20 character LCD backlit display
- 20" prefilter in a stainless steel filter housing
- Multistage centrifugal pump
- Tank level and pretreatment interlock inputs
- Permeate, and reject water flow meter sensors
- Adjustable reject and reject recycle valves
- Permeate check valve
- Automatic inlet solenoid valve /actuated control valve
- Dedicated outlet from RO panel for chemical feed control

### Optional Features

- Feed blending valve
- Advanced controller with more complex monitoring & controlling functions (default for PWHC8040062 and larger)
- pH sensor
- ORP sensor
- Permeate sampling port
- Various power option: 220VAC 3PH 50Hz, 380VAC 3PH 50Hz, 460VAC 3PH 60Hz

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.

**WATTS®**

## Specifications

A Series PWHC80 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-sitting design. The RO permeate water is usually 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, 3 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 99.1% 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 <sub>3</sub> (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)       | Less than 0.1 mg/L                                                                                                                                            |
| Iron (maximum)                | Less than 0.1 mg/L                                                                                                                                            |
| Oil and H <sub>2</sub> S      | None Allowed                                                                                                                                                  |
| Turbidity                     | Less than 1.0 NTU                                                                                                                                             |
| Silt Density Index            | Less than 5.0 SDI preferred < 3 SDI                                                                                                                           |

### NOTICE

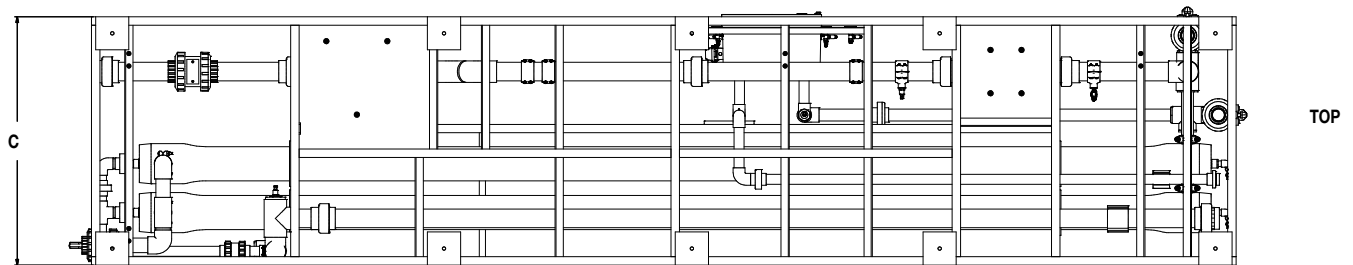
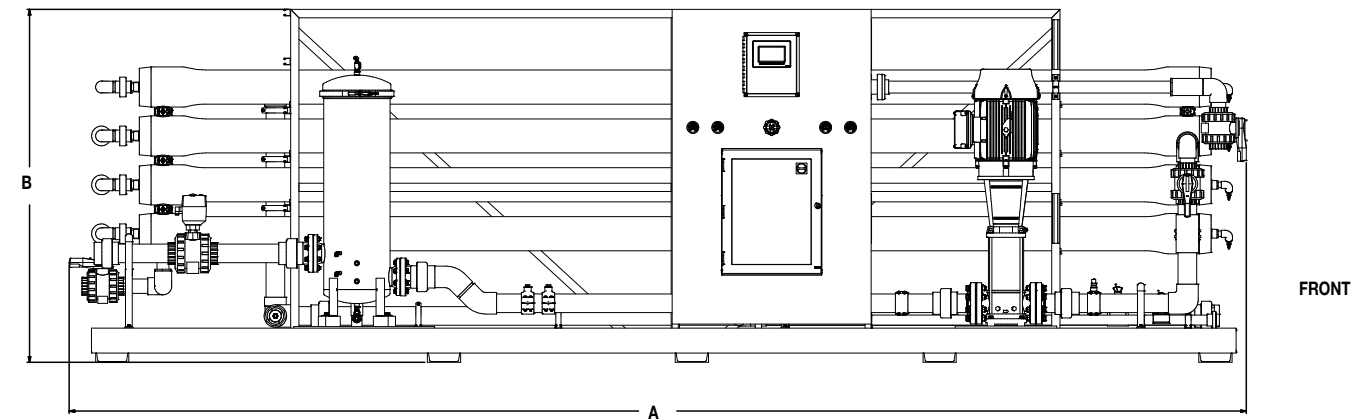
For all other guideline information please contact your Watts representative. Published maximum production rates are based on a feed water of 77°F, SDI of less than 3, 2000 ppm TDS, and pH 8 with a feed pressure of 150 psi. Individual membrane productivity may vary (± 15%). May be operated on other feed waters with reduced capacity.

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

### NOTICE

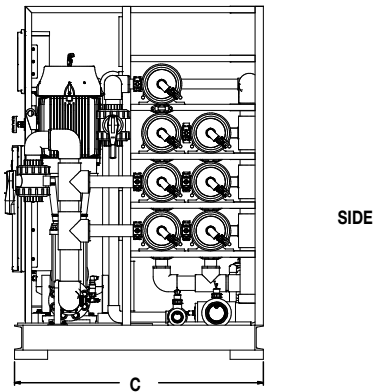
The information contained herein is not intended to replace the full product installation and safety information available or the experience of a trained product installer. You are required to thoroughly read all installation instructions and product safety information before beginning the installation 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> | <i>kg</i> |
| PWHC8040041 | 72         | 1829      | 74         | 1880      | 35         | 889       | 1305      | 591.9     |
| PWHC8040051 | 72         | 1829      | 74         | 1880      | 35         | 889       | 1385      | 628.2     |
| PWHC8040061 | 72         | 1829      | 80         | 2032      | 35         | 889       | 1465      | 664.5     |
| PWHC8040042 | 112        | 2845      | 74         | 1880      | 38         | 965       | 1585      | 718.9     |
| PWHC8040052 | 112        | 2845      | 74         | 1880      | 38         | 965       | 1735      | 787.0     |
| PWHC8040062 | 112        | 2845      | 80         | 2032      | 38         | 965       | 1885      | 855.0     |
| PWHC8040044 | 194        | 4928      | 75         | 1905      | 41         | 1041      | 2275      | 1031.9    |
| PWHC8040054 | 194        | 4928      | 75         | 1905      | 41         | 1041      | 2645      | 1199.8    |
| PWHC8040064 | 194        | 4928      | 85         | 2159      | 41         | 1041      | 2910      | 1320.0    |
| PWHC8040056 | 276        | 7010      | 85         | 2159      | 60         | 1524      | 3500      | 1587.6    |
| PWHC8040066 | 276        | 7010      | 85         | 2159      | 60         | 1524      | 3930      | 1782.6    |
| PWHC8040076 | 276        | 7010      | 85         | 2159      | 60         | 1524      | 4450      | 2018.5    |



Performance

|                                                         | PWHC8040041     | PWHC8040051 | PWHC8040061 | PWHC8040042 | PWHC8040052 | PWHC8040062 | PWHC8040044 | PWHC8040054 | PWHC8040064 | PWHC8040056 | PWHC8040066 | PWHC8040076 |
|---------------------------------------------------------|-----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Order code                                              | 7101142         | 7101143     | 7101144     | 7101145     | 7101146     | 7101147     | 7101148     | 7101149     | 7101150     | 7101151     | 7101152     | 7101153     |
| Maximum Productivity<br>(gallons per min)               | 22 gpm          | 27.5 gpm    | 33 gpm      | 44 gpm      | 55 gpm      | 66 gpm      | 88 gpm      | 110 gpm     | 132 gpm     | 165 gpm     | 200 gpm     | 238 gpm     |
| Quality (average membrane rejection)                    | 99.1%           |             |             |             |             |             |             |             |             |             |             |             |
| Recovery (user adjustable)                              | up to 75%       |             |             |             |             |             |             |             |             |             |             |             |
| Membrane Size                                           | 8" x 40"        |             |             |             |             |             |             |             |             |             |             |             |
| Membrane surface area (sqft)                            | 440             |             |             |             |             |             |             |             |             |             |             |             |
| Number Of Membranes                                     | 4               | 5           | 6           | 8           | 10          | 12          | 16          | 20          | 24          | 30          | 36          | 42          |
| Vessel Array                                            | 1:1:1:1         | 1:1:1:1:1   | 1:1:1:1:1:1 | 1:1:1:1     | 2:1:1:1     | 3:2:1       | 2:1:1       | 3:1:1       | 3:2:1       | 3:1:1       | 3:2:1       | 4:2:1       |
| "Prefilter (system ships with one 5 micron cartridge) " | 20"             |             |             |             |             |             |             |             |             |             |             |             |
| Feed Water Connection                                   | 2" FNPT         |             |             |             |             | 3" FNPT     |             |             |             | 4" FNPT     | 4" FNPT     | 4" FNPT     |
| Product Water Connection                                | 1.5" FNPT       |             |             | 2" FNPT     | 2" FNPT     | 2.5" FNPT   |             |             | 3" FNPT     |             |             | 4" FNPT     |
| Reject Water Connection                                 | 1.25" FNPT      |             |             |             |             | 1.5" FNPT   |             |             | 2" FNPT     |             |             |             |
| Minimum Concentrate Flow                                | 14 gpm          |             |             |             |             |             |             |             |             |             |             |             |
| Feed Water Pressure (minimum)                           | 45 psi          |             |             |             |             |             |             |             |             |             |             |             |
| Electrical Requirement                                  | 230V, 60Hz, 3pH |             |             |             |             |             |             |             |             |             |             |             |
| Motor Horse Power                                       | 10              |             |             |             |             | 15          |             | 20          |             | 25          |             | 30          |
| Dimensions W x D x H<br>(approximate inches)            | 72x35x74        |             | 72x35x80    | 112x38x74   |             | 112x35x80   | 194x41x78   |             | 194x41x85   | 276x60x85   |             |             |
| Shipping Weight (estimated pounds)                      | 1305            | 1385        | 1465        | 1585        | 1735        | 1885        | 2275        | 2645        | 2910        | 3500        | 3930        | 4450        |

Applications

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

