BWRO-412 Series

Reverse Osmosis Systems from 5000GPD to 18000GPD (Feed TDS < 3000 ppm).

BWRO-B412 Series

BWRO-P412 Series

The smart, clean utilitarian industrial design of the BWRO-412 Series allows for convenient installation, user-friendly operation, and ease of maintenance. These skid-mounted, packaged systems are pre-plumbed and pre-wired complete on a steel frame with panel-mounted pressure and flow instrumentation allowing for straight forward system monitoring and control. EWP offers an assortment of both basic and premium designs of pure water systems that can be private labeled or customized.

Benefits

Fully equipped and customizable
Individually tested and preserved
Expandable and skid mounted
Low operation and maintenance costs
Components easily accessible
Easy maintenance and servicing
Pre-plumbed, wired and assembled
1-year limited warranty

Applications

Municipal, Wastewater, Hotel, Military, Hospital, Food and beverage, Agriculture, Pharmaceutical, Disaster relief, Mining, Refinery, Power and energy, Restaurants, Boiler feed

Ordering Guide

Example	BWRO-B412	6000	TB	380T50
RO system series				
BWRO-B412	[basic]			
BWRO-P412	[premium]			
Nominal Capacity				
6000	[6000GPD = 1.0m3/h]			
9000	[9000GPD = 1.5m3/h]			
12000	[12000GPD = 2.0m3/h]			
15000	[15000GPD = 2.5m3/h]			
18000	[18000GPD = 3.0m3/h]			
Connection (code)				
TB	[Thread, BSPT]			
TN	[Thread, NPT]			
Power supply (code)				
380T50	[380VAC/ three phase/50HZ]			
220T60	[220VAC/ three phase/60HZ]			
400T50	415T50	440T50	200T60	208T60
240T60	380T60	440T60	460T60	480T60

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BWRO-B412 Series Reverse Osmosis System Standard Feature (basic design)

Cartridge filtration

•Housing --- HPCF-5DC2
•PP cartridge --- 2.5" × 20"; 5 micron
•Quantity --- 5 pcs

Membrane and housing

•Membrane model --- ULP-4040
•Membrane manufacturer --- Panamar
•Membrane rejection --- 99.0-99.3%
•Housing --- FRP, 450psi, side port

Boost pump

•Type --- vertical multi-stage centrifugal
•Pump material --- SS316L
•Connection --- DIN Flange
•Pump brand --- CNP

Solenoid valve

•Feed solenoid valve --- SS316; 10bar
•Flush solenoid valve --- SS316; 25bar

Instrumentation

•Flow meters --- permeate, concentrate, concentrate recycle
•Conductivity --- permeate
•Pressure gauge --- pre-filter, post-filter, pump discharge, concentrate
•Pressure switch --- feed, RO membrane inlet

Material of construction

•High - pressure piping --- SS316
•Low - pressure piping --- UPVC
•Frame --- SS304
•Control box --- IP54 (painted carbon steel)

Connection port

•Feed inlet port
•Permeate port
•Drain port
•Clean-in-place (CIP) ports

Documentation included

•Operation and maintenance manual
•Drawings: P&ID, electrical diagram

Control system

•Relay and timer control
•Adjustable timer
•Tank level control
•Low pressure/High pressure protection
•Auto flush
•Pretreatment lockout control backup

Options and Upgrades

- ☐ **pH meter**
- ☐ **Feed water conductivity meter**
- ☐ **Grundfos/Danfoss pump**
- ☐ **Dow/Hydranautics/Toray membrane**
- ☐ **SS304/316 seamless housing**
- ☐ **PLC controller**
- ☐ **Antiscalant dosing system**
- ☐ **Clean-in-place (CIP) system**
- ☐ **Pretreatment system**

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BWRO-412 Series Specifications

MODEL	BWRO-412-6000	BWRO-412-9000	BWRO-412-12000	BWRO-412-15000	BWRO-412-18000
Feed water TDS [1]	<3000ppm	<3000ppm	<3000ppm	<3000ppm	<3000ppm
Nominal permeate rate [2]	1.0m³/h	1.5m³/h	2.0m³/h	2.5m³/h	3.0m³/h
Approx. conc. rate	0.45m³/h	0.62m³/h	0.86m³/h	1.05m³/h	1.24m³/h
Approx. conc. recycle rate	0.5m³/h	0.1m³/h	0.9m³/h	0.5m³/h	0.3m³/h
Approx. feed rate	1.45m³/h	2.06m³/h	2.86m³/h	3.5m³/h	4.2m³/h
Recovery rate	65~75%	65~75%	65~75%	65~75%	65~75%
Pump and Motor (50HZ / *60HZ*)					
Manufacturer	CNP	CNP	CNP	CNP	CNP
Model	CDLF2-25 (50hz)	CDLF2-26 (50hz)	CDLF4-22 (50hz)	CDLF4-22 (50hz)	CDLF4-22 (50hz)
Motor power rate	3kw	3kw	4kw	4kw	4kw
Pump wetted parts material	SS316	SS316	SS316	SS316	SS316
Design flow rate [3]	1.95m³/h	2.3m³/h	3.76m³/h	4.0m³/h	4.5m³/h
Design boost pressure	18.5bar	18.5bar	18.1bar	17.8bar	17.0bar
Model	*CDLF2-15 (60hz)*	*CDLF2-18 (60hz)*	*CDLF4-14 (60hz)*	*CDLF4-14 (60hz)*	*CDLF4-16 (60hz)*
Motor power rate	*3kw*	*4kw*	*5.5kw*	*5.5kw*	*5.5kw*
Pump wetted parts material	*SS316*	*SS316*	*SS316*	*SS316*	*SS316*
Design flow rate [3]	*1.95m³/h*	*2.3m³/h*	*3.76m³/h*	*4.0m³/h*	*4.5m³/h*
Design boost pressure	*17.8bar*	*20.5bar*	*17.2bar*	*17.0bar*	*18.8bar*
Membranes Elements and Housings					
RO membrane quantity	4	6	8	10	12
RO housing quantity	4 (single element)	6 (single element)	4 (2-element)	5 (2-element)	6 (2element)
RO array	1→1→1→1	1→1→1→1→1→1	2→2	2→2→1	2→2→2
Installation					
Inlet	1.5"BSPT or NPT	1.5"BSPT or NPT	1.5"BSPT or NPT	1.5"BSPT or NPT	1.5"BSPT or NPT
Permeate	1"BSPT or NPT	1"BSPT or NPT	1"BSPT or NPT	1"BSPT or NPT	1"BSPT or NPT
Drain	1/2"BSPT or NPT	1/2"BSPT or NPT	1/2"BSPT or NPT	1/2"BSPT or NPT	1/2"BSPT or NPT
CIP inlet	1"BSPT or NPT	1"BSPT or NPT	1"BSPT or NPT	1"BSPT or NPT	1"BSPT or NPT
CIP outlet	1"BSPT or NPT	1"BSPT or NPT	1"BSPT or NPT	1"BSPT or NPT	1"BSPT or NPT
Package Dimension					
Approx. height	1350mm	1350mm	1350mm	1350mm	1350mm
Approx. width	700mm	700mm	850mm	850mm	850mm
Approx. depth	1650mm	1650mm	2350mm	2350mm	2350mm
Approx. shipping weight	240kg	260kg	250kg	265kg	275kg
Options					
Antiscalant feed system	Metering pump: 1.5 L/hr;		Chemical tank: 60-100L		
CIP system	CIP pump: 2m³/h@3bar;		CIP tank: 200L;	CIP filter: 4.5"×20"BB	
Pretreatment: PTSC836 series	PTSC836-14	PTSC836-16	PTSC836-18	PTSC836-21	PTSC836-24
Pretreatment: PTSCS836 series	PTSCS836-14	PTSCS836-16	PTSCS836-18	PTSCS836-21	PTSCS836-24

[1]Treatment ability and working pressure of the RO system are dependent on feed water quality.

[2] Maximum permeate rate listed at temperature 25℃, Permeate rate decreases with lower temperatures

[3] Design flow rate of the pump is the sum of the Feed rate and Concentrate recycle rate.

Operating Limits

Max. feed temperature	35°C	Free Chlorine	undetectable	Max. TDS	**3000ppm**
Min. feed temperature	5 °C	Iron	<0.1 ppm	SDI	<5
Max. feed pressure	5bar	Manganese	<0.05 ppm	pH (Continuous)	4 ~ 9
Min. feed pressure	2bar	Organic matter	<1 ppm	Min. pH (Continuous)	4

**Note:* *All design and specifications are for reference only and subject to change without prior notice.*