

# LPRO-B16 Series Reverse Osmosis Systems

---

## LPRO-B16 Series Reverse Osmosis System

have been engineered for capacities ranging from 1200GPD to 9000GPD for low TDS feed water design (Feed TDS < 1500ppm)

### Applications:

- Drinking water
- Food & Beverage
- Electroplating
- Power plant
- Preparation of medicine
- Petrochemical industry
- Eyeglass
- Waste water reuse
- Metallurgy
- Pretreatment of EDI or Mixed Bed



**LPRO-B16-9000** Reverse Osmosis System

### Benefits

---

- Fully Equipped and Customizable
- Expandable and Skid Mounted
- Components Easily Accessible
- Pre-Plumbed Wired and Assembled
- Individually Tested and preserved
- Low Operation and Maintenance Costs
- Easy Maintenance and Servicing
- 1-Year Limited Warranty

# LPRO-B16 Series Reverse Osmosis Systems

## Standard Features

---

### Cartridge Filtration

- Housing --- 4.5" × 20"
- Sediment filter --- 4.5" × 20"; 5micron
- Quantity --- 1 pc

### Membrane Elements and Housings

- Membrane model --- ULP21-4040
- Membrane manufacturer --- Vontron
- Membrane rejection --- 99.0-99.6%
- Housing Spec. --- FRP, 300psi, End port

### Boost Pump

- Type --- Vertical Multi-stage Centrifugal
- Pump Material --- SS304
- Connection --- DIN Flange
- Pump Brand --- CNP

### Connection Port

- Feed Inlet Port
- Permeate Port
- Drain Port
- Clean-in-Place (CIP) Ports

### Instrumentation

- Flow meters --- Permeate, concentrate, concentrate recycle
- Conductivity --- Permeate
- Pressure gauge--- Pre-filter, post - filter, pump discharge, concentrate
- Pressure switch --- Feed, RO membrane inlet

### Control system

- Relay and timer control
- Timer adjustable
- Tank level control
- Low pressure/High pressure protection
- Auto flush
- Pretreatment lockout control backup

### Solenoid valve

- Feed Solenoid Valve --- SS304; 10bar
- Flush Solenoid Valve --- SS304; 15bar

### Material of Construction

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

### Documentation Included

- Operation and maintenance manual
- Drawings: P&ID, Electrical diagram

## Options and Upgrades

---

- PLC Controller
- pH Meter
- Feed Water Conductivity Meter
- Grundfos Pump
- SS304 Seamless Housing
- Anti-scalant Dosing System
- Clean-in-Place (CIP) system
- Pretreatment system

# LPRO-B16 Series Reverse Osmosis Systems

## Ordering Guide

---

|                        |          |      |    |        |
|------------------------|----------|------|----|--------|
| Order Example          | LPRO-B16 | 9000 | TB | 220S50 |
| Type                   |          |      |    |        |
| Nominal Capacity (GPD) |          |      |    |        |
| Connection (code)      |          |      |    |        |
| Power supply (code)    |          |      |    |        |

| Connection Port | Code |
|-----------------|------|
| Thread, BSPT    | TB   |
| Thread, NPT     | TN   |

| Power Supply                 | Code   |
|------------------------------|--------|
| 220VAC / 50hz / single phase | 220S50 |
| 230VAC / 50hz / single phase | 230S50 |
| 240VAC / 50hz / single phase | 240S50 |
| 100VAC / 60hz / single phase | 100S50 |
| 110VAC / 60hz / single phase | 110S50 |
| 120VAC / 60hz / single phase | 120S60 |
| 127VAC / 60hz / single phase | 127S60 |
| 200VAC / 60hz / single phase | 200S60 |
| 220VAC / 60hz / single phase | 220S60 |
| 240VAC / 60hz / single phase | 240S60 |
| 380VAC / 50hz / three phase  | 380T50 |
| 400VAC / 50hz / three phase  | 400T50 |
| 415VAC / 50hz / three phase  | 415T50 |
| 440VAC / 50hz / three phase  | 440T50 |
| 200VAC / 60hz / three phase  | 200T60 |
| 208VAC / 60hz / three phase  | 208T60 |
| 220VAC / 60hz / three phase  | 220T60 |
| 240VAC / 60hz / three phase  | 240T60 |
| 380VAC / 60hz / three phase  | 380T60 |
| 440VAC / 60hz / three phase  | 440T60 |
| 460VAC / 60hz / three phase  | 460T60 |
| 480VAC / 60hz / three phase  | 480T60 |

# LPRO-B16 Series Reverse Osmosis Systems

## Specifications

| MODEL                                  | LPRO-B16-1500   | LPRO-B16-3000   | LPRO-B16-4500   | LPRO-B16-6000   | LPRO-B16-9000   |
|--|---|---|---|---|---|
| Feed Water TDS <sup>1</sup>            | <1500ppm  | <1500ppm  | <1500ppm  | <1500ppm  | <1500ppm  |
| Nominal Perm. rate <sup>2</sup>        | 0.25m <sup>3</sup> /hr  | 0.5m <sup>3</sup> /hr   | 0.75m <sup>3</sup> /hr  | 1.0m <sup>3</sup> /hr   | 1.5m <sup>3</sup> /hr   |
| Approx. Conc. rate                     | 0.12m <sup>3</sup> /hr  | 0.25m <sup>3</sup> /hr  | 0.3m <sup>3</sup> /hr   | 0.4m <sup>3</sup> /hr   | 0.6m <sup>3</sup> /hr   |
| Approx. conc. recycle rate             | 1.1m <sup>3</sup> /hr   | 0.8m <sup>3</sup> /hr   | 0.8m <sup>3</sup> /hr   | 0.6m <sup>3</sup> /hr   | 0.6m <sup>3</sup> /hr   |
| Approx. Feed rate                      | 0.38m <sup>3</sup> /hr  | 0.7m <sup>3</sup> /hr   | 1.0m <sup>3</sup> /hr   | 1.5m <sup>3</sup> /hr   | 2.2m <sup>3</sup> /hr   |
| Recovery Rate                          | 50~75%  | 50~75%  | 60~75%  | 60~75%  | 60~75%  |
| <b>Pump and Motor</b>                  |   |   |   |   |   |
| Manufacturer                           | CNP   | CNP   | CNP   | CNP   | CNP   |
| Model                                  | CDLF2-13 (50hz)   | CDLF2-13 (50hz)   | CDLF2-15 (50hz)   | CDLF2-15 (50hz)   | CDLF2-18 (50hz)   |
| Motor HP                               | 1.5kw   | 1.5kw   | 1.5kw   | 1.5kw   | 2.2kw   |
| Wet contact Material                   | SS304   | SS304   | SS304   | SS304   | SS304   |
| Design flow rate <sup>3</sup>          | 1.48m <sup>3</sup> /hr  | 1.5m <sup>3</sup> /hr   | 1.8m <sup>3</sup> /hr   | 2.1m <sup>3</sup> /hr   | 2.8m <sup>3</sup> /hr   |
| Pump pressure                          | 10.8bar   | 10.8bar   | 11.8bar   | 11.0bar   | 10.8bar   |
| <b>Membranes Elements and Housings</b> |   |   |   |   |   |
| Membranes quantity                     | 1   | 2   | 3   | 4   | 6   |
| Memb. housing Qty                      | 1 (single element)  | 2 (single element)  | 3 (single element)  | 4 (single element)  | 6 (single element)  |
| Membrane housing array                 | 1   | 1→1   | 1→1→1   | 1→1→1→1   | 1→1→1→1→1→1   |
| <b>Valves</b>                          |   |   |   |   |   |
| Auto inlet valve                       | 3/4" SS304; solenoid  | 3/4" SS304; solenoid  | 1" SS304; solenoid  | 1" SS304; solenoid  | 1" SS304; solenoid  |
| Auto flush valve                       | 1/2" SS304; solenoid  | 1/2" SS304; solenoid  | 1/2" SS304; solenoid  | 1/2" SS304; solenoid  | 1/2" SS304; solenoid  |
| Feed valve after HP pump               | 3/4" SS304;adjustable   | 3/4" SS304;adjustable   | 3/4" SS304;adjustable   | 3/4" SS304;adjustable   | 1" SS304;adjustable   |
| Concentrate valve                      | 1/2" SS304;adjustable   | 1/2" SS304;adjustable   | 1/2" SS304;adjustable   | 1/2" SS304;adjustable   | 1/2" SS304;adjustable   |
| Recycle valve                          | 1/2" SS304;adjustable   | 1/2" SS304;adjustable   | 1/2" SS304;adjustable   | 1/2" SS304;adjustable   | 1/2" SS304;adjustable   |
| Recycle check valve                    | 1/2" UPVC   | 1/2" UPVC   | 1/2" UPVC   | 1/2" UPVC   | 1/2" UPVC   |
| Manual CIP inlet                       | 3/4" UPVC ball valve  | 3/4" UPVC ball valve  | 3/4" UPVC ball valve  | 3/4" UPVC ball valve  | 3/4" UPVC ball valve  |
| <b>Installation</b>                    |   |   |   |   |   |
| Inlet                                  | 1"BSPT or NPT   | 1"BSPT or NPT   | 1"BSPT or NPT   | 1"BSPT or NPT   | 1"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                              | 3/4"BSPT or NPT   | 3/4"BSPT or NPT   | 3/4"BSPT or NPT   | 3/4"BSPT or NPT   | 3/4"BSPT or NPT   |
| CIP outlet                             | 3/4"BSPT or NPT   | 3/4"BSPT or NPT   | 3/4"BSPT or NPT   | 3/4"BSPT or NPT   | 3/4"BSPT or NPT   |
| <b>Package Dimension</b>               |   |   |   |   |   |
| Approx. Height                         | 1650mm  | 1650mm  | 1650mm  | 1650mm  | 1650mm  |
| Approx. Width                          | 700mm   | 700mm   | 700mm   | 700mm   | 700mm   |
| Approx. Depth                          | 650mm   | 650mm   | 650mm   | 800mm   | 800mm   |
| Approx. Shipping Weight                | 180kg   | 190kg   | 200kg   | 215kg   | 235kg   |
| <b>Options</b>                         |   |   |   |   |   |
| Antiscalant Feed System                | Metering pump:<br>1.5 L/hr<br>Chemical tank:<br>60-100L                         | Metering pump:<br>1.5 L/hr<br>Chemical tank:<br>60-100L                         | Metering pump:<br>1.5 L/hr<br>Chemical tank:<br>60-100L                         | Metering pump:<br>1.5 L/hr<br>Chemical tank:<br>60-100L                         | Metering pump:<br>1.5 L/hr<br>Chemical tank:<br>60-100L                         |
| CIP system                             | CIP tank: 200L<br>CIPpump:<br>2m <sup>3</sup> /h@3bar<br>CIP filter: 4.5"×20"BB | CIP tank: 200L<br>CIPpump:<br>2m <sup>3</sup> /h@3bar<br>CIP filter: 4.5"×20"BB | CIP tank: 200L<br>CIPpump:<br>2m <sup>3</sup> /h@3bar<br>CIP filter: 4.5"×20"BB | CIP tank: 200L<br>CIPpump:<br>2m <sup>3</sup> /h@3bar<br>CIP filter: 4.5"×20"BB | CIP tank: 200L<br>CIPpump:<br>2m <sup>3</sup> /h@3bar<br>CIP filter: 4.5"×20"BB |
| Pretreatment:<br>PTSC836 series        | PTSC836-10  | PTSC836-10  | PTSC836-12  | PTSC836-14  | PTSC836-16  |
| Pretreatment:<br>PTSCS836 series       | PTSCS836-10   | PTSCS836-10   | PTSCS836-12   | PTSCS836-14   | PTSCS836-16   |

<sup>1</sup>Treatment ability and working pressure of the RO system are dependent on feed water quality.

<sup>2</sup> Maximum permeate rate listed at temperature 25°C, Permeate rate will decreases with decreasing temperature

<sup>3</sup> Design flow rate of the pump is the sum of Feed rate and Concentrate recycle rate

## Operating Limits

|                          |           |         |                         |              |
|--------------------------|-----------|---------|-------------------------|--------------|
| Maximum Feed Temperature | °C (°F)   | 35 (95) | pH (Continuous)         | 4 ~ 9        |
| Minimum Feed Temperature | °C (°F)   | 5 (41)  | Minimum pH (Continuous) | 4            |
| Maximum Feed Pressure    | bar (psi) | 5 (72)  | Free Chlorine           | undetectable |
| Minimum Feed Pressure    | bar (psi) | 2 (29)  | Iron                    | ppm <0.1     |
| Maximum TDS              | ppm       | 1500    | Manganese               | ppm <0.05    |
| SDI                      |           | <5      | Organic matter          | ppm <1       |

WATER PURIFICATION TECHNOLOGIES

# LPRO-B16 Series Reverse Osmosis Systems

