# Industrial Plankton™

# PBR 100L Installation Requirements


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Customer is responsible for ensuring **all** the following requirements are met.
Contact support@industrialplankton.com with any questions or concerns.

## Consumables

### pH probe solutions

- ☐ 7 calibration solution
- ☐ 10 calibration solution
- ☐ Storage solutions
- ☐ Deionized water (for rinsing)

### Cleaning solutions

- ☐ 70% alcohol (For any of rubbing, ethyl, or isopropyl alcohol)
- ☐ Biofilm removal agents (see User Manual for alternatives)
    - Muriatic Acid (33% HCl)
    - Steris CIP 100®
- ☐ Bleach (4-12% sodium hypochlorite)
- ☐ Sodium thiosulphate (bleach neutralization)

### Culture reagents

- Compressed carbon dioxide gas cylinder (pH control). The regulator supplied with each PBR will be a CGA320 threading in North America and BS341#8 threading internationally (see order confirmation). Ensure cylinder thread matches regulator supplied.
- Nutrient stock solutions. For marine algae, the commercially available (Proline or Fritz) Guillard's F/2 concentrates are suitable: Part A, B & silicate (diatoms only) are all required. If using other nutrient stock solutions, please contact support@industrialplankton.com with your recipe.
    - The PBR is equipped with two nutrient stock solution filters. The right nutrient pump is not filtered, as Silica will clog the 0.2 µm filter.
- Clean algae culture (inoculum)
    - Equip inoculum vessel with a Female Quick Disconnect Fitting (two supplied per PBR with ⅜" ID barb) and 0.2 µm air inlet and vent filters.

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## Supplies and Equipment

- ☐ Autoclave or steam sterilizer (sterilizing of inoculum-media, PBR's components, and non-filtered nutrient stocks)
- ☐ Aluminum foil and/or autoclavable bags (maintaining sterility of autoclaved components)
- ☐ Spray bottle(s) with adjustable mist setting (alcohol sanitizing fittings)
- ☐ 5 gal/20 L bucket (calibrating Harvest Pump)
- ☐ 1000 mL & 100 mL graduated cylinders (calibrating Nutrient Pumps)
- ☐ Soft cotton rags (wiping acrylic)
- ☐ 0 - 500 g capacity scale (weighing reagents)
- ☐ Carbon dioxide monitor/alarm (recommended around any $CO_2$ source)
- ☐ Pallet jack and/or forklift (moving/placing empty PBR)
- ☐ Stepladder

## Infrastructure

- ☐ Sturdy floor
  - Floor must safely support at least working weight of PBR.
  - Sealed concrete is recommended for biosecurity.
  - Floor should slope to drainage.
- ☐ Floor Drain
  - PBR is designed to gravity drain during cleaning.
  - Drain should be within 7 m of the PBR.
  - Cleaning fluids should drain to waste, not to waterways.
  - Never allow cleaning fluids to mix.
  - Most cleaners used are biodegradable through dilution, but check local discharge regulations to ensure compliance.
- ☐ Wireless Router with internet connection in range of PBR
  - Network firewalls may interfere with remote connection. Contact your network administrator to ensure remote access will be usable if desired.
- ☐ Protection from the elements
  - PBRs should be protected from direct sunlight, or rain. Greenhouses are acceptable, but may require a larger integrated chiller or shadecloth to maintain acceptable culture temperatures.
- ☐ Ventilation
  - PBRs should be well ventilated to disperse heat produced. Ventilation is beneficial when working with compressed gases and cleaning agents.

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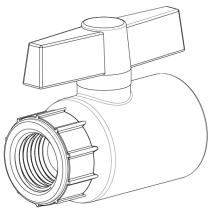
- ☐ Continuous water supply for culture media (salty or fresh water)
  - Customer to equip supply with ½" female national pipe thread ball valve.
  - Water Supply should be constant (24 hours/day, 7 days/week)
  - Pressure: 0.3-4.1 bar (5-60 PSI)
  - Water chemistry needs to suitable for algae growth (free of chlorine or other chemicals which inhibit growth)
  - Water should be filtered down to 1µm (nominal) prior to header tank.



- ☐ Freshwater supply for cleaning
  - Free of particulate (<20 µm)
  - Municipal water is generally suitable
  - Equipped with a hose for filling PBR intermittently during cleaning process

- ☐ **Two (2)** Power Electrical Receptacles sized and installed in accordance with local regulations
  - In-use covers are recommended for all outlets installed around water sources. Ensure in-use covers are large enough to accommodate the plugs.
  - Main PBR Plug is equipped with GFCI circuit breaker inside control box. Please notify support@industrialplankton.com if facility breaker has GFCI installed and the internal GFCI will be removed.
  - **1 x** Main PBR Power Receptacle (**Refer to Order Confirmation**)

| **Main PBR Options**: |  |  |  |
|---|---|---|---|
| **Circuit Requirement**: | 110-120 V<br><br>60Hz<br>Max Draw: 2690W / 115V / 23.6A | 220V-240V<br>**(NOT 208V)**<br>60Hz<br>Max Draw: 2910W / 230V / 13.8A | 220V<br><br>50Hz<br>Max Draw: 2600W / 220V / 12.2A |

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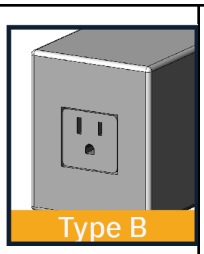
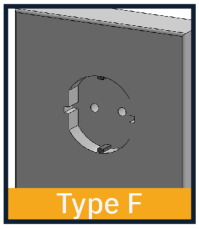
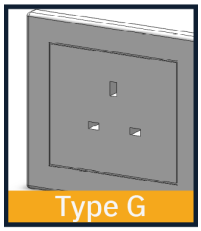
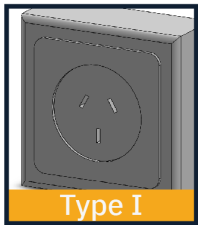
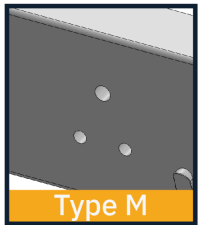
- **1 x** Header Power Receptacle (**Refer to Order Confirmation**)

| **Header Outlet** |  |  |  |  |  |
|---|---|---|---|---|---|
| **Circuit** | 110-120 V<br>60 hz<br>Max Draw:<br>450W /<br>115V / 4.3A) | 220-240 V<br>50 hz<br>Max Draw:<br>450W / 230V<br>/ 2.2A) | 220-240 V<br>50 hz<br>Max Draw:<br>450W / 230V<br>/ 2.2A | 220-240 V<br>50 hz<br>Max<br>Draw:450W /<br>230V / 2.2A | 220-240 V<br>50 hz<br>Max Draw:<br>450W / 230V<br>/ 2.2A |

- Header does not include an internal GFCI. Ensure all wall receptacles are equipped with GFCI style outlets around liquids.

## Specifications

| | |
|---|---|
| Volume | 115 L / 30 gal |
| Working Volume | 100 L / 27 gal |
| Minimum Volume | 16 L / 4.2 gal |
| Max Power Consumption | 2,460 W |
| Max Heat Energy | 8,400 BTU / hr |
| Avg. Steady State Power Req. | 1,500 W |
| Avg. Heat Energy | 5,100 BTU / hr |
| Available Voltages (AC) | 110-120 / 220-240 V |
| Available Frequencies | 60 / 50 Hz |
| Ideal Working Space (LxWxH) | 2.03 m x 2.54 m x 1.98 m<br>80 in x 100 in x 78 in |
| Operational Weight | 500 kg / 1,100 lb |
| Doorway Clearance (WxH)<br>No dissasebly required | 1.02 m x 1.79 m<br>40 in x $70^{1}/_{2}$ in |
| Doorway Clearance (WxH)<br>Some dissasebly required | 0.87 m x 1.79 m<br>$33^{7}/_{8}$ in x $70^{1}/_{2}$ in |
| Doorway Clearance (WxH)<br>Complex dissasebly required | 0.76 m x 1.79 m<br>30 in x $70^{1}/_{2}$ in |
| PBR 100L as shipped<br>(LxWxH)<br>(Wt) | 1.70 m x 1.22 m x 2.08 m<br>67 in x 48 in x 82 in<br>363 kg / 800 lbs |
| Header Tank as shipped<br>(LxWxH)<br>(Wt) | 1.19 m x 1.19 m x 1.80 m<br>47 in x 47 in x 71 in<br>140 kg / 300 lbs |

Specifications subject to change without notice

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## Dimensions