

INDUSTRIAL PLANKTON

PBR 1250L

Photobioreactor — Turnkey Microalgae Cultivation System

A complete, ready-to-run platform for microalgae cultivation and process development.

Manufactured by Industrial Plankton Inc. (Victoria, BC, Canada) • in service since spring 2023 • well-maintained, fully operational



Industrial Plankton PBR 1250L – complete system with header tank, chiller and CO₂ supply.

Overview

Aircanol Oy is offering for sale a complete Industrial Plankton PBR 1250L photobioreactor system. The unit has been in continuous use since spring 2023, is well-maintained and fully operational, and is offered as a turnkey package: vessel, lighting, gas management, dosing, cooling and a modern touchscreen-controlled automation system with remote access.

The PBR 1250L is a closed, high-surface-area cultivation system built around a custom 1250 L vessel with a 1200 L working volume. It is designed for reliable, repeatable production of photosynthetic microalgae – from strain development and inoculum scale-up through to steady-state production – with automated control of light, pH, CO₂, temperature, nutrient dosing and harvesting. An integrated 250 L header tank provides UV-treated, ultrafiltered process water, and the clean-in-place (CIP) system supports fast, repeatable batch turnaround.

Easy to use and keep clean. The touchscreen-controlled automation makes day-to-day operation straightforward, and the integrated clean-in-place (CIP) system keeps the closed vessel easy to sanitise between cultures – no manual scrubbing, and fast, repeatable turnaround.

Compact footprint. The system delivers full 1250 L cultivation capacity in a compact vertical package that fits into a modest lab or pilot space (ideal working area approx. 3.05 × 2.44 m).

Strong growth performance. The closed, high-surface-area vessel combined with 2160 W of algal-spectrum LED lighting gives strong, controllable growth performance compared with many other PBR designs, supporting high-density cultivation across a broad range of species.

Advice to get you started. As part of the sale we are happy to advise the new owner on the best species to start with and to share reference data and operating know-how to get the first cultures running quickly.

Key features

Closed 1250 L system

Custom high-surface-area vessel, 1200 L working volume, on a dedicated stand with lid – closed cultivation for contamination control.

Full-spectrum LED lighting

2160 W of algal-spectrum LED illumination for high, controllable photosynthetic productivity.

Touchscreen automation

Integrated PLC and control software with a touchscreen HMI; real-time logging and recipe-based operation.

Remote access ready

Process can be monitored and operated remotely – ideal for unattended runs and multi-site oversight.

Automated CO₂ & pH control

pH probe and transmitter with automated CO₂ dosing valve and regulator for stable culture chemistry.

Real-time density sensor

Continuous optical-density monitoring to track growth and trigger harvest decisions.

Integrated cooling & heating

Heat exchanger, 5,000 BTU chiller and 300 W heater hold culture temperature against ambient swings.

Clean-in-Place (CIP)

Internal spray cleaning system with spray pump trolley for fast, repeatable sanitation between batches.

Proven performance & versatility

The PBR 1250L is designed for continuous, hands-off production of clean, live microalgae – or high-density batch culture whenever needed. It ships as a complete unit that sets up in a matter of hours, and nutrients, water, temperature and pH are regulated automatically while the system harvests continuously for months or the whole batch can be taken at any time.

Continuous production

Typically 200–500 L harvested per day, and 100–300 g of biomass produced per day (ash-free dry weight) at culture densities of 0.3–1.2 g/L.

High-density batches

Run in batch mode when you need it – batch densities typically exceed those achievable in continuous operation.

Broad strain range – Nannochloropsis, Spirulina, Chlorella, Isochrysis, Tetraselmis, Chaetoceros, Haematococcus pluvialis and many more.

Performance figures reflect the manufacturer's reference data and vary with strain, inoculum quality and operating conditions.

Technical specifications

Total volume	1250 L / 330 gal
Working volume	1200 L / 317 gal
Minimum volume	160 L / 42 gal
LED lighting	Algal-spectrum, 2160 W
Avg. steady-state power	3,160 W
Max power consumption	4,170 W
Supply voltage / frequency	110–120 / 220–240 V AC, 50 / 60 Hz
Avg. / max heat rejection	10,780 / 14,200 BTU/hr
Operational weight	2,130 kg / 4,700 lb
Ideal working space (L×W×H)	3.05 × 2.44 × 2.79 m
Minimum height / for servicing	2.21 m / 2.80 m
Header tank	250 L, with UV filter, ultrafilter & supply pump

Figures are taken from the manufacturer specification for the standard configuration and are indicative.

Scope of delivery & components

The system is offered complete with all major subsystems as originally supplied:

Vessel & control

- Custom 1250 L high-surface-area vessel, lid & stand
- Algal-spectrum LED lighting (2160 W)
- Touchscreen control system with PLC & software
- Real-time density sensor

Air & pH control

- Air pump with inlet & vent filters (0.2 µm)
- Needle-valve flowmeter
- pH probe & transmitter
- Automated CO₂ valve & CO₂ regulator

Nutrient dosing

- 3 dosing pumps (1 mL/s)
- Magnetic stir plates
- 2 nutrient filters (0.2 µm)

Flow & harvest

- Water filter (0.1 µm)
- In-tank volume sensor
- Harvest pump (6 L/min)
- Actuated inlet valve & manual needle valve

Header tank

- 250 L header tank
- UV filter & ultrafilter
- Water supply pump

Temperature & CIP

- Temperature probe & heat exchanger
- 5,000 BTU chiller
- 300 W heater
- Internal spray cleaning system + spray pump trolley

Note: CO₂ supply cylinder is not included. Exact scope confirmed on inspection.

Condition & history

In service since spring 2023 – well-maintained and fully operational.

The reactor has been operated and maintained by Aircohol Oy as part of an active microalgae development programme. It is offered in good working order. Inspection and a live demonstration can be arranged by appointment at our facility in Lahti.

Location & contact

The unit is located in Lahti, Finland and can be viewed by appointment.

Aircohol Oy

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Price and delivery terms by agreement – request a quote.

Images and technical data are indicative. Specifications subject to change.