



HATCHERY SOLUTIONS

From Seed to Sea
– Tools for Early-Stage
Seaweed Cultivation

INCUBATOR UNIT
LABORATORY BATCH SETUP
PUREHATCH NURSERY UNIT

Incubator Unit – Single Photobioreactor (PBR)

Compact, Plug-and-Play Cultivation for Experiments, Demonstration & Outreach

This standalone PBR is the most accessible and cost-effective entry point into land-based seaweed cultivation and hatchery activities. Delivered plug-and-play with integrated lighting and circulation, it is ideal for single-strain testing, spore induction, and public engagement activities.

Description

The Single PBR is designed for simplicity and versatility in experimental settings:

- **Central light module** housed in a cooling grid for stable and uniform light distribution
- **Optimized circulation:** Built-in aeration ensures natural mixing for uniform growth conditions
- **Optional combined power and control:** One plug and one switch operate both light and pump
- **No setup required:** Delivered pre-assembled for instant use

This unit has also been successfully used as a **mini-incubator** for spore induction and gametophyte development, and as a mobile demonstration system for conferences and outreach.

Available as a standalone unit but when increasing unit numbers, we instead recommend our Laboratory Batch Setup.

Ideal for:

- ✓ Strain selection
- ✓ Sporulation induction
- ✓ Communication and outreach

Best suited for:

- 🔬 Research
- 🌱 Seaweed Grow-out
- ⚓ Seaweed Hatchery

Why choose it:

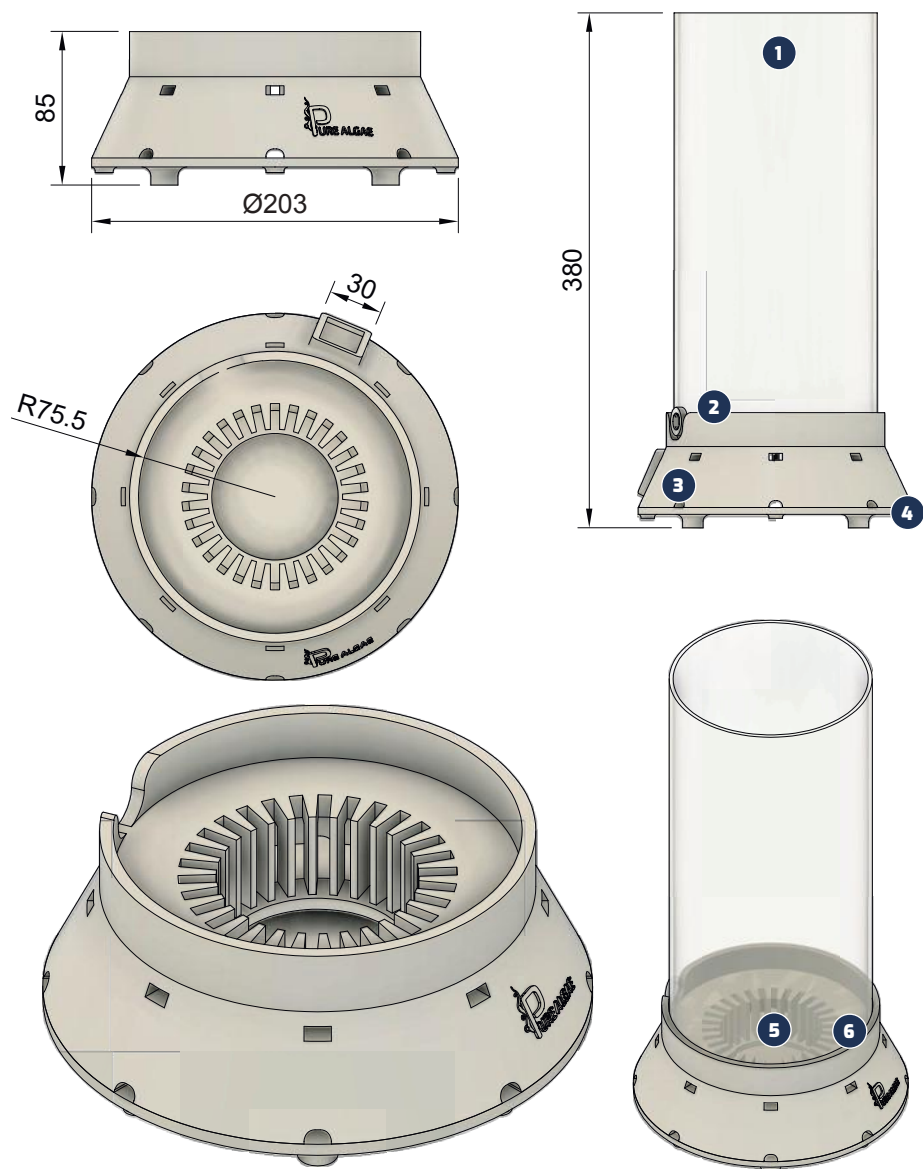
- Ideal for spore induction and exploratory trials
- Highly portable – perfect for conferences and communication
- Most cost-effective solution for early-stage strain testing



We primarily use the Incubator Unit for outreach, but it's proven highly effective for both vegetative growth and triggering sporulation.

- Sofie, Seaweed Network Facilitator, AlgaeCenter Denmark





Bioreactor [1]
Air flow input [2]
Light switch [3]

Anti slip [4]
Central light module [5]
Cooling grid [6]



Technical Specifications

Power Supply:	Universal power supply 220 V, 50 Hz
Max Power Usage:	15W
System size:	380 x 203 (H x Ø)
Bioreactors:	H: 300 mm, Ø: 150 mm, Functional volume: 4 L
Net Weight:	1 kg (5 kg with water)

Laboratory Batch Setup

Simplified Strain Selection and hatchery operations

The Laboratory Batch Setup is designed for compact, precision-driven seaweed cultivation without the complexity of recirculation systems. This setup is ideal for hatchery activities focused on strain selection, spore induction, gametophyte maintenance, and batch-based experimental trials.

Description

This stand-alone unit offers controlled conditions for early-stage cultivation and research, using isolated vessels for batch processes:

- **12 bioreactors**, each with a **4-liter capacity** (total: **48 liters**)
- **Independent batch operation** for each reactor – allows for tight control of media composition
- **Adjustable air flow control** ensuring optimal gas exchange with easy adjustments
- **Light control** ensuring optimal light intensity and cycle control
- **User-friendly design** for high-precision data collection, minimal human error, and standardized, time efficient processes

Optional add-ons include:

- **Custom lighting modules** for spectral control
- **Light isolation** via a complete screening of each shelf-blocking contamination of external light
- **Relevant supplementary options**, including a unique pressing unit, starter kits, and cleaning technology

With a simplified plug-and-play design, this setup is fast to install, easy to use, and highly suitable for testing multiple strains or parameters in parallel.

Ideal for:

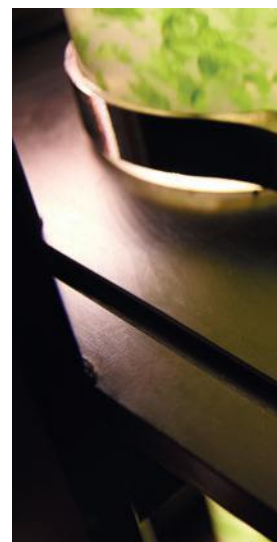
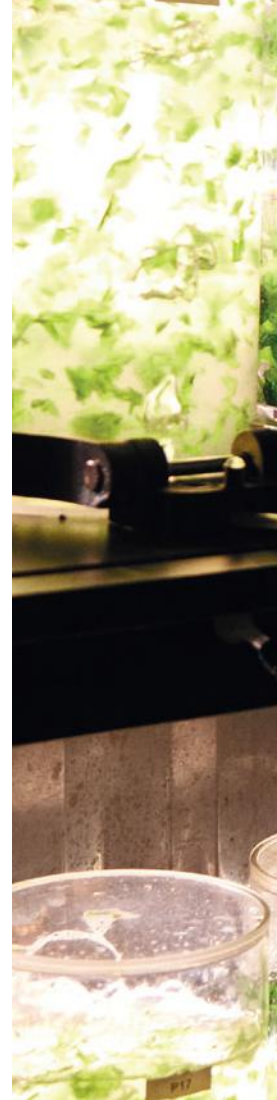
- ✓ Strain selection & comparison
- ✓ Gametophyte maintenance
- ✓ Sporulation induction
- ✓ Batch cultivation

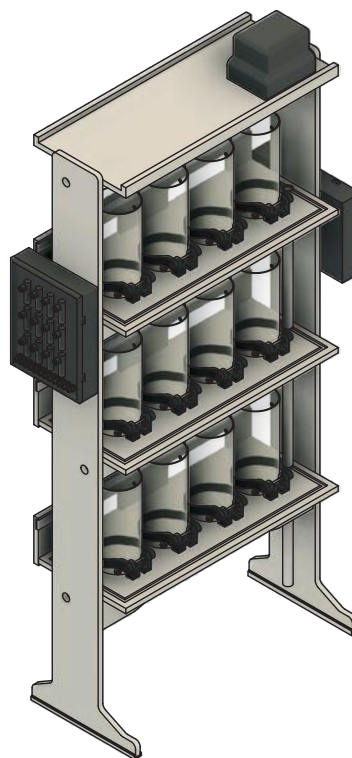
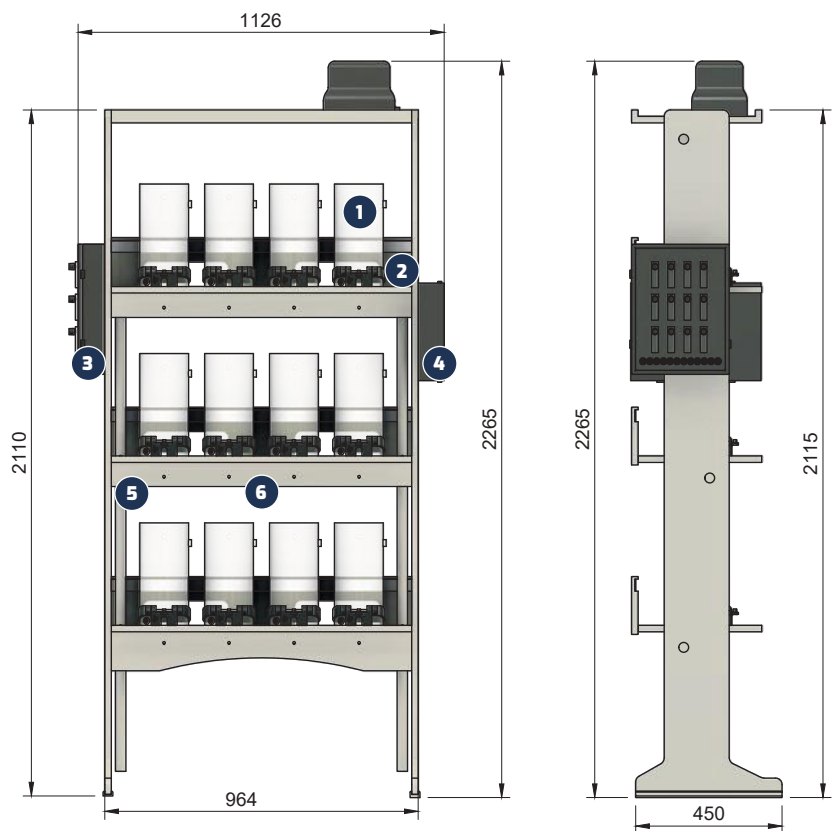
Best suited for:

- 🔬 Research
- ⚓ Seaweed Hatchery

Why choose it:

- Plug-and-play setup – fast and intuitive installation
- Perfect for small-scale trials and early-stage development
- Maximizes value while minimizing time and cost





Bioreactors [1]

Easy harvesting module [2]

Air flow control [3]

Light control [4]

Unique shelf systems with
drains [5]

Potential Light Screening [6]

Technical Specifications

Power Supply: Universal power supply 220 V, 50 Hz

Max Power Usage: 150W

System size: 2105 x 964 x 450 mm (H x W x D)

Bioreactors: H: 300 mm, Ø: 150 mm,
Functional volume: 4 L

Net Weight: 100 kg (150 kg with water)

PUREHATCH Nursery Unit

Efficient Nursery for Uniform Growth and Stronger Seedlings

The PUREHATCH Nursery Unit is an advanced pre-deployment system for seaweed cultivation. It bridges the gap between hatchery and full-scale production, enabling growers to produce robust, uniformly developed seedlings for higher yields and greater planting efficiency.

Description

Our nursery solution is based on patented technology that involves fluid-driven rotation to optimize early-stage growth of seaweed on seeded substrates such as twine. Each unit includes a cultivation tank equipped with multiple rotating spools that continuously expose the seed-bearing substrates to a dynamic water flow and to even lighting – thanks to our patented light module.

- **Rotating cultivation spools:** Powered by airflow, the rotation ensures 360° exposure to light and nutrients, improving uniformity and seedling quality
- **Multiple substrate options:** Twine, mesh, film or natural fibers – easily mounted on spools to suit different species
- **Patented light module:** Energy-efficient exposure to maximize growth without heat stress
- **Improved water movement:** Rotation promotes gas exchange, nutrient delivery and fouling prevention
- **Proven functionality:** Proven performance with *Saccharina*; applicable to *Ulva*, *Palmaria* and more
- **Installation-ready:** Delivered as a ready-to-run system with minimal setup

Ideal for:

- ✓ Nursery-stage outgrowth
- ✓ Optimizing twine-seeding
- ✓ Growth optimization

Best suited for:

- 🔬 Research
- ⚓ Seaweed Hatchery

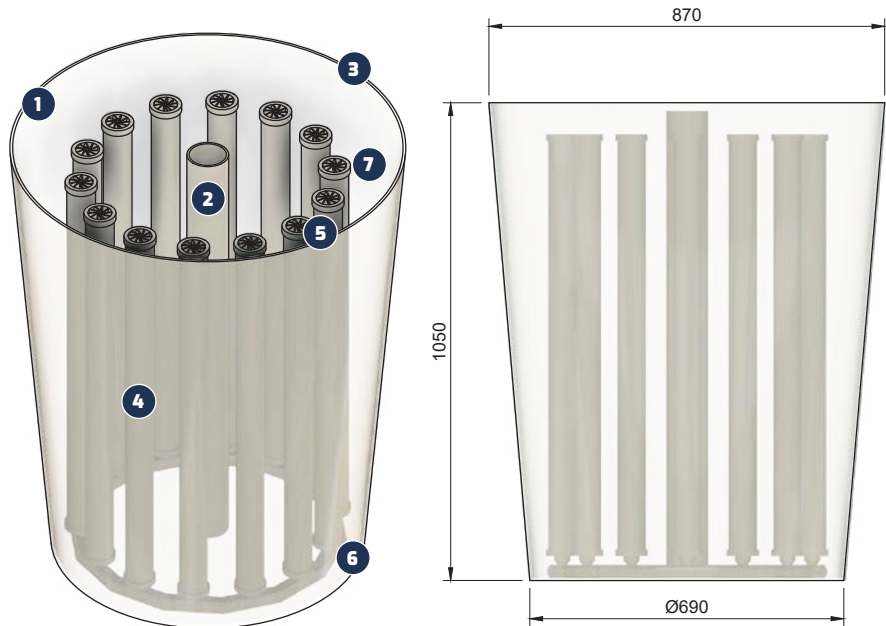
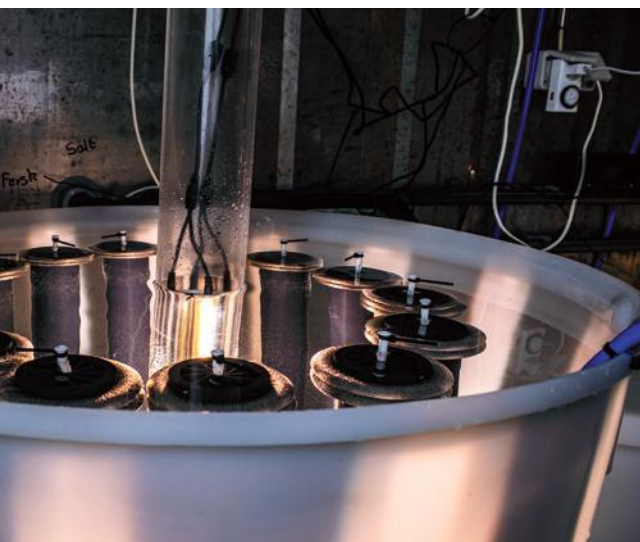
Why choose it:

- Designed for uniform light & flow with rotating spool system
- Air-driven rotation minimizes complexity and energy use
- Increases seedling success and end-yield potential

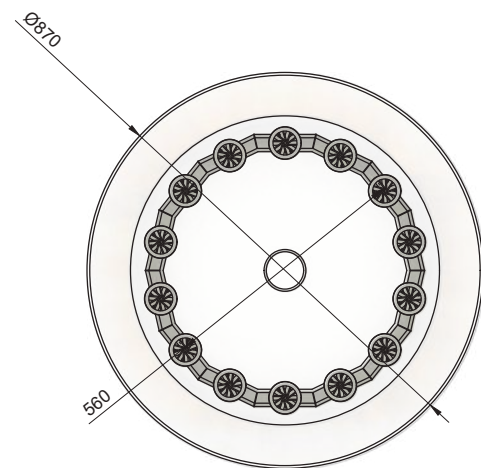
” We believe this concept holds strong potential for the future of seaweed cultivation. Spore quality and early-stage growth are critical to the final product, and with this technology, we achieve uniform, well-distributed settlement across the entire surface of our cultivation spools.

- Simon, Co-founder & Head of Cultivation, Dansk Tang





- Nursery Tank [1]
- Patented Light Module [2]
- Recirculation and Cooling Option [3]
- Rotating Spool [4]
- Fluidic Rotor [5]
- Nozzle System [6]
- Buoyancy Device [7]



Technical Specifications

Volumen:	400 L
Height:	1050 mm
Diameter:	870 mm
Weight:	15 kg
Max power usage:	250W
Spools:	Height: 930 mm Diameter: 90 mm

About Pure Algae

Pure Algae Denmark was founded in 2018 by Esben Rimi Christiansen. The idea behind founding the company comes from a mission to safeguard the oceans' natural resources.

In 2018 Esben published his thesis on seaweed where he showed the positive potential for sea lettuce in public health and within the area of sustainability. It became the first seed for Pure Algae.

The global demand for seaweed is on the rise and Pure Algae's vision has been to become Denmark's first supplier of a technology that enables a stable and sustainable production of seaweed on land.

With our closed, controlled systems, you can grow high quality and allergen free seaweed, benefiting our environment and health – while at the same time ensuring a revenue for your business.

Contact Us

Get in touch for expert advice on your tailored solution.

Let me help you optimize your seaweed production with our state-of-the-art technology. Contact me today!

Founder and Leader

Esben Rimi Christiansen

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Phone: **+45 60 535 642**



purealgae.dk



See Pure Algae's intro video
purealgae.dk/about-us



Based on our experience with Pure Algae, we consider the company a highly reliable partner – committed to generating robust data while advancing equipment designed for large-scale, land-based cultivation systems for Ulva. Their team consist of skilled professionals, with in-depth knowledge on both project planning and management – as well as the engineering and biological side of their field of work.

- Teis, Seaweed Scientist, Aarhus University

Pure Algae Denmark

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