LettUs GROW

Aeroponic Rolling Benches™

Product brochure 2025

Introduction

We're reducing the waste and carbon footprint of fresh produce by giving all growers access to advanced aeroponic technology.

Our unique, patented solution uses ultrasonics to deliver nutrient-rich mist to plant roots, allowing aeroponics to be harnessed in commercial scale growing operations with Aeroponic Rolling Benches.

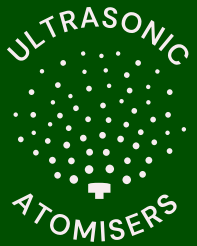
Aeroponic Rolling Benches combine the functionality of industry standard hydroponic systems, with the powerful innovation of ultrasonic aeroponics. By utilising aeroponic irrigation, greenhouse growers and vertical farmers can optimise crop production and enhance crop quality, without disrupting current operations.

It's world-leading aeroponics, with world-changing potential.

Our technology

LettUs Grow's aeroponic technology improves the efficiency and profitability of automated greenhouses and vertical farms.

Aeroponics mimics the healthy air pockets found in a natural soil system, which boosts access to oxygen. This results in a healthier root system, faster growth rates & higher yields.



Aeroponics is an irrigation method of growing plants without soil. Our patented ultrasonic technology is used to generate high-frequency sound waves that shakes the water, until it disperses into lots of tiny droplets. This creates a mist, which is delivered to plant roots suspended in air.

Ultrasonic technology removes the need for nozzles and increases the viability of using aeroponics in much larger, commercial growing spaces, where its impact is maximised.

The Aeroponic Advantage

We are continuously validating the advantages of aeroponics with collaborative crop trials and feasibility studies, held with world-leading research centres from across the globe.

Aeroponic vs hydroponic crop growth trials with Wageningen University

Researchers at Wageningen university conducted simultaneous aeroponic and hydroponic basil growth trials in an aim to boost understanding of the performance of the two irrigation systems. The trial resulted in a 21% uplift in fresh weight harvested from the aeroponic irrigation.

Sowing the seeds of onion farming's future

Working with Stourgarden and the University of Essex, LettUs Grow are supporting the research and development of onions grown in an aeroponic container system. This project aims to reduce the carbon footprint of onions grown in open fields, as well as speed up crop growth and prevent soil borne diseases.

Aeroponic greenhouse system developed for willow propagation

Partnering with the University of Surrey and the TAEDA Tech Project, we investigated how willow saplings can be grown using aeroponics to supply resources to the UK's biomass energy system. The project was successful and remains operating at the University of Surrey.

Aeroponic crops

Aeroponics can be used to grow a variety of crops, trialled at our research centre in Bristol UK, and validated by partners from across the industry.

In the spotlight:

Spinach

Currently, growers using hydroponic systems to grow spinach under glass experience constant root and fungal diseases. This limits growers to approximately 6 months of spinach production, before the system become untenable and requires a complete drain and sterilisation.

Aeroponics provides a potential solution. As mist is applied only to the root zone, the growing medium remains dry, so there is less opportunity for pests and diseases to thrive. We are actively trialling a selection of spinach varieties to support leading growers. These include:

- Medania
- Acadia
- Longhorn
- Traverse
- Crosstrek
- Nevada
- Dallas

Other aeroponic crops include:

Leafy greens & herbs

- Amaranth (aztech)
- Chard (rainbox)
- Kale (rkal)
- Lettuce (green batvia)
- Mustard (red frills)
- Pak choi
- Basil (sweet genovese & Thai)
- Coriander (split)
- Chives (medium)
- Dill (domino)
- Mint

Micro greens & shoots

- Broccoli (green)
- Fennel
- Garlic chives
- Kale (Dwarf Blue)
- Leek
- Mizuna (red empire)
- Radish (sangria)
- Red cabbage
- Shiso
- Pea shoots (4019)
- Sunflower shoots

R&D

- Strawberry root stock
- Tomato
- Tree whips (forestry)
- Tree whips (fruit)
- Onions
- Vine crops

Aeroponic Rolling Benches

Aeroponic Rolling Benches (ARBs) are designed to integrate seamlessly into standard indoor growing facilities and operations with minimal retro-fit work required.

Retro fit or new build

ARBs are compatible with existing rolling frame infrastructures, allowing for easy integration without impacting current operations. If you're constructing a new facility, we will work with you to ensure the site is compatible with both aeroponics and alternative irrigation technologies.

Plant supports

Working with our innovation partners, **Meteor Systems**, we are able to provide a range of plant supports and technical guidance on what supports will work best for your chosen crop and market.

Aeroponic or hybrid

Designed to be used alongside any irrigation systems compatible with rolling benches. Whether fully or partially aeroponic, our ARBs compliment any growing facility.

Installation

How does installation work?

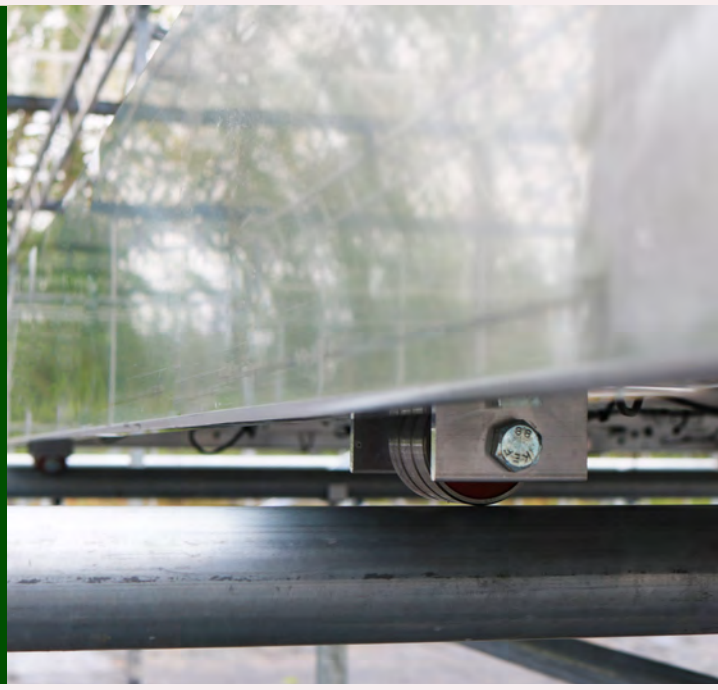
To start, we will arrange to have a call with yourself and our commercial team to understand your aims and requirements. Depending on the scope of your project, LettUs Grow's delivery team would then attend your facility to complete a site assessment. This would gather key parameters and specifications of the site to inform our product recommendation and ensure compatibility.

Our in-house team will then propose a suitable aeroponic trial setup to deliver to you. Some staff training would be required to ensure all operators are inducted to work with the aeroponic equipment confidently and safely.

Rolling features

The rolling features of ARBs have been developed based on industry standard specifications.

- A combination of roller and steering wheels are used on the benches to accommodate a range of rolling bar sizes.
- Nominal wheel spacing is 1750mm



Water systems

- Standard top-fill water supply to benches.
- 6-10l/min water supply flow rate recommended.
- Water supplied to benches at intervals optimised to each facility.
- Constant water supply can be accommodated.

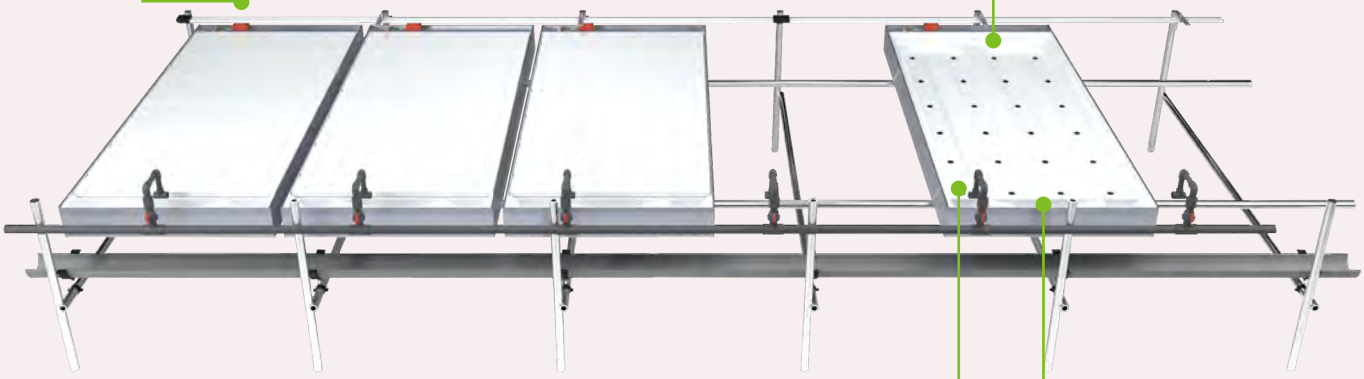
Technical components

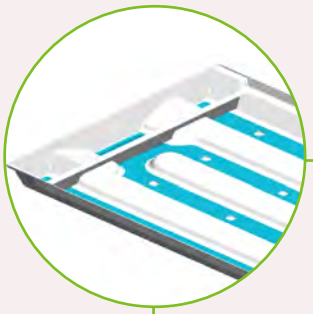
Current collectors

Current collectors are installed on every bench and make contact with a conductor rail, ensuring a continuous power supply to the atomisers as the benches are moved through the facility.

Atomisers

When powered and submerged in nutrient-rich water, atomisers emit ultrasonic sound waves that shake the water, creating a fine mist which nourishes plant roots.





Water flow

The channels in each insert have been designed to guide and promote mixing of the nutrient-rich water. This means there is equal distribution of nutrients throughout the systems for consistent crop growth.

Drain system

The drain system maintains the water level, for efficient atomiser functionality and water usage.

Product specifications

Aeroponic Rolling Benches are continuously being optimised and improved. Indicative product data of modules and individual bench specifications can be seen below.

Physical parameters

Full product growing area	96m²
Qty benches per product	32
Qty modules per product	2
Qty benches per module	16
Full product dimensions*	20.8m external length External width dependant on relative module positioning
Single module dimensions	20.8m length 2.8m width

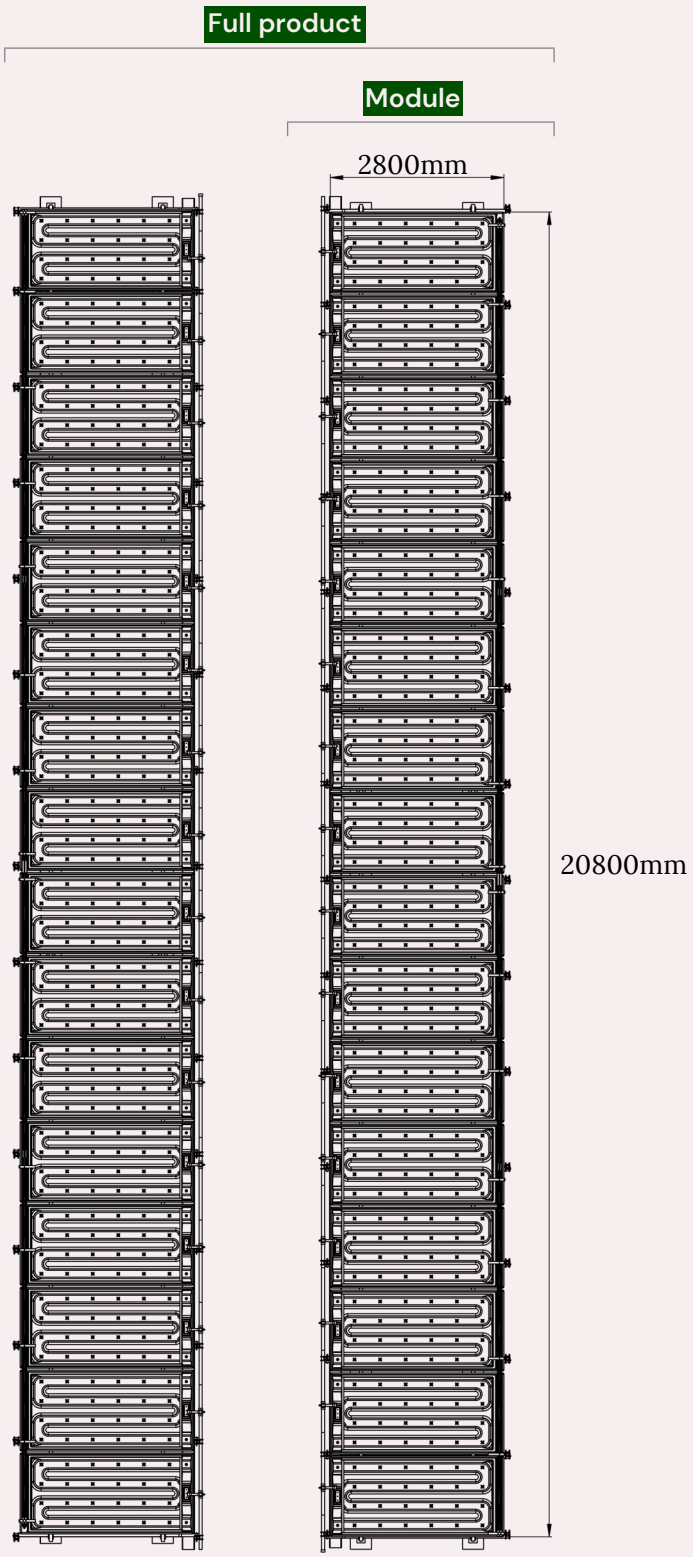
Electrical parameters

Product supply requirements	Three phase 16A 400V

Site requirements

- Rolling bar structure
- Top fill irrigation network
- Under bench guttering system

*Dimensions are adjustable, and will be evaluated on a project by project basis.



Bench specifications

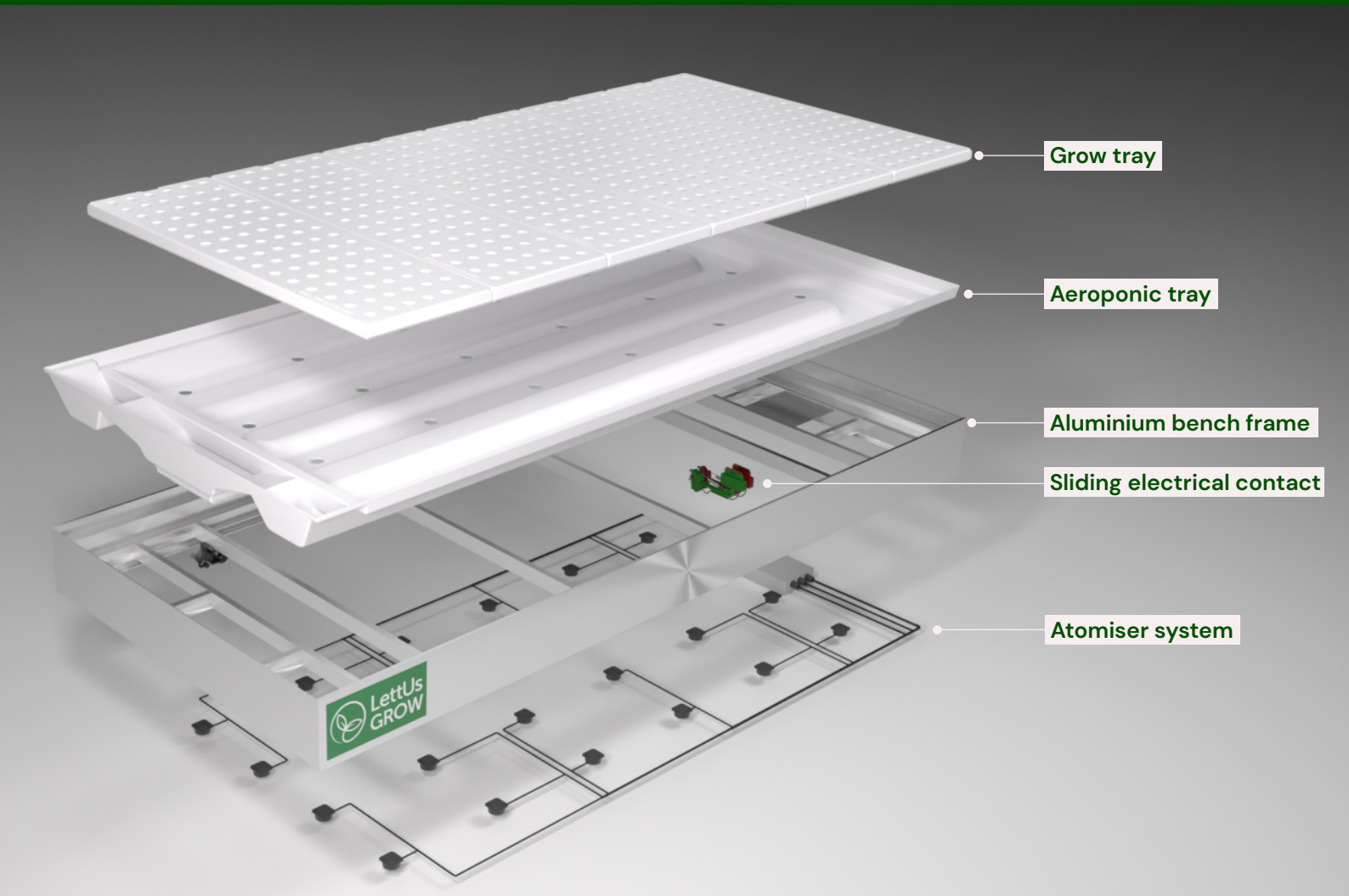
Physical parameters

Bench growing area	3m²
Bench frame weight	~30kg
Aeroponic insert weight	~17.5kg

Electrical parameters

Bench maximum current	21.6A
Bench operating voltage	24VDC
Atomisers per bench	24
Power cycle	Approx 50%*

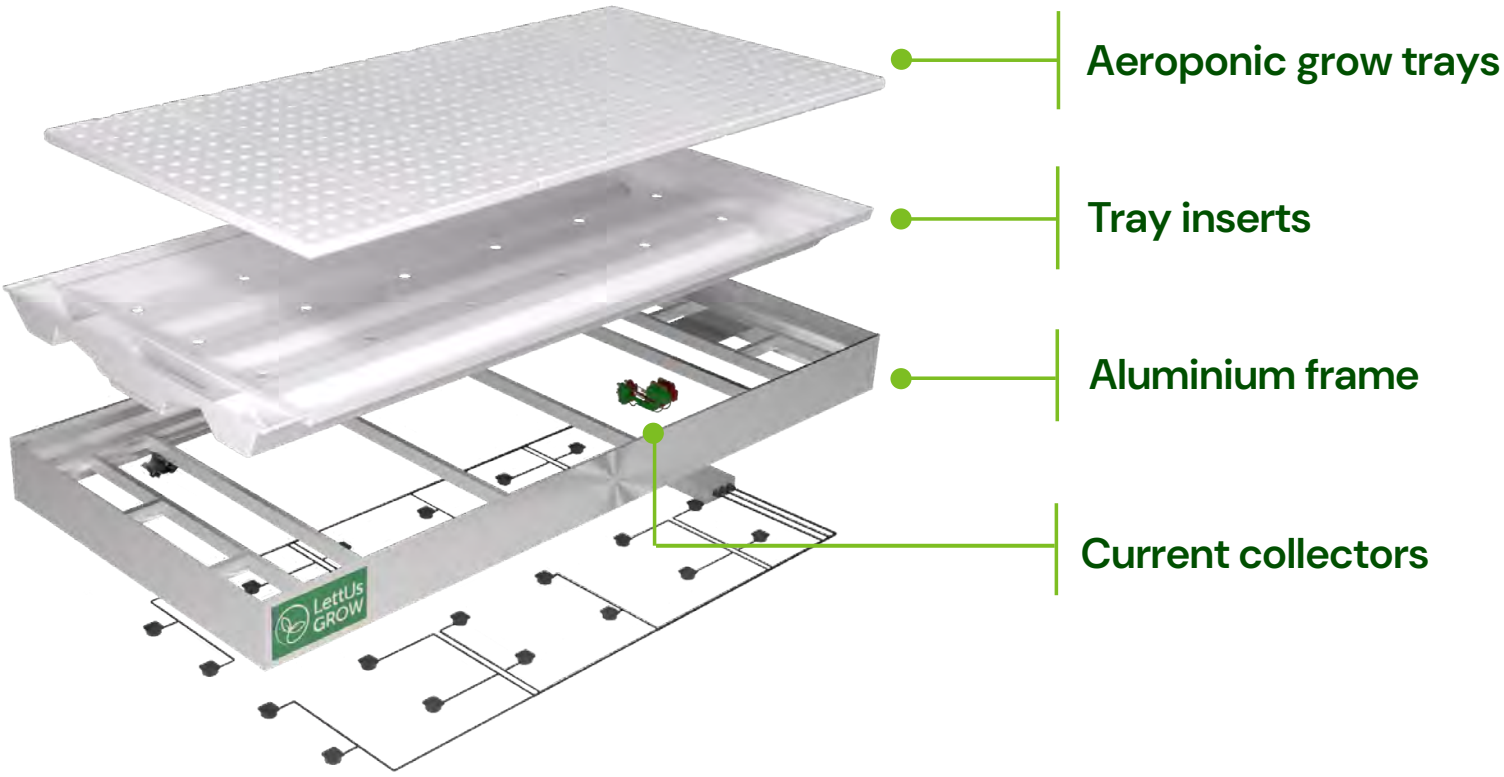
*Grower and crop recipe dependent.



Our collaborators in aeroponic innovation

Our production partners

Aeroponic Rolling Benches combine cutting-edge ultrasonic aeroponic technology with automated indoor farming systems. We have worked with trusted delivery partners from across the industry to ensure our retrofit design is adaptable, reliable and gives growers the power to accelerate production with ease.



Delivery partners

We are working with delivery partners from across the globe, allowing us to deploy Advanced Aeroponics at scale. Non-exclusive manufacturing and sales licenses are available to meet worldwide demand for aeroponic projects.

If you would like to discuss how you can add Aeroponic Rolling Benches to your product range for either greenhouse or vertical farming projects, please contact:

ben@lettusgrow.com

Contact us

If you're interested in what Aeroponic Rolling Benches could bring to your facility, get in touch with our Business Development team below:

lettusgrow.com

enquiries@lettusgrow.com

Unit 4
Avon Valley Business Park
Chapel Way
Bristol
BS4 4EU