

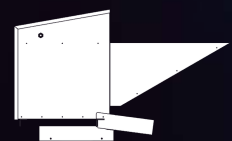


Active Environmental Control Systems for Regulated Cannabis Production

Supporting Microbial
Compliance

Protecting Yield
Integrity

Strengthening
Contamination Control
Strategies



Executive Summary

Airborne microbial contamination remains one of the leading causes of failed TYMC testing, batch rejection, and escalating remediation costs in regulated cannabis production.

HORTI International delivers active environmental control systems engineered to support contamination control strategies across cultivation, drying, and processing environments.

Unlike passive systems, HORTI technology operates continuously, helping to reduce airborne microbial pressure and stabilise environmental conditions without disrupting airflow design or operational workflows.

HORTI systems are designed to integrate seamlessly into existing facility infrastructure and support environmental control principles aligned with EU-GMP Annex 1 and Annex 15.

Implementation Framework:

- Phase 1: Targeted single-zone deployment
- Phase 2: Treated vs control comparison
- Phase 3: Facility-wide integration

Strategic Positioning:

HORTI is not a replacement for SOPs — it is a layer of continuous environmental control designed to strengthen contamination prevention strategies, protect yield integrity, and support compliance outcomes.

Why Horti?

Return on Investment:

Preventing one failed batch can justify the full system investment.

Microbial failure can result in:

- Failed TYMC tests
- Batch rejection
- Remediation costs
- Delays to market

Typical impact:

- Batch loss: £50,000 – £500,000+
- Downtime and labour costs

HORTI provides:

- Reduced contamination risk
- Improved environmental stability
- Protection of high-value crops

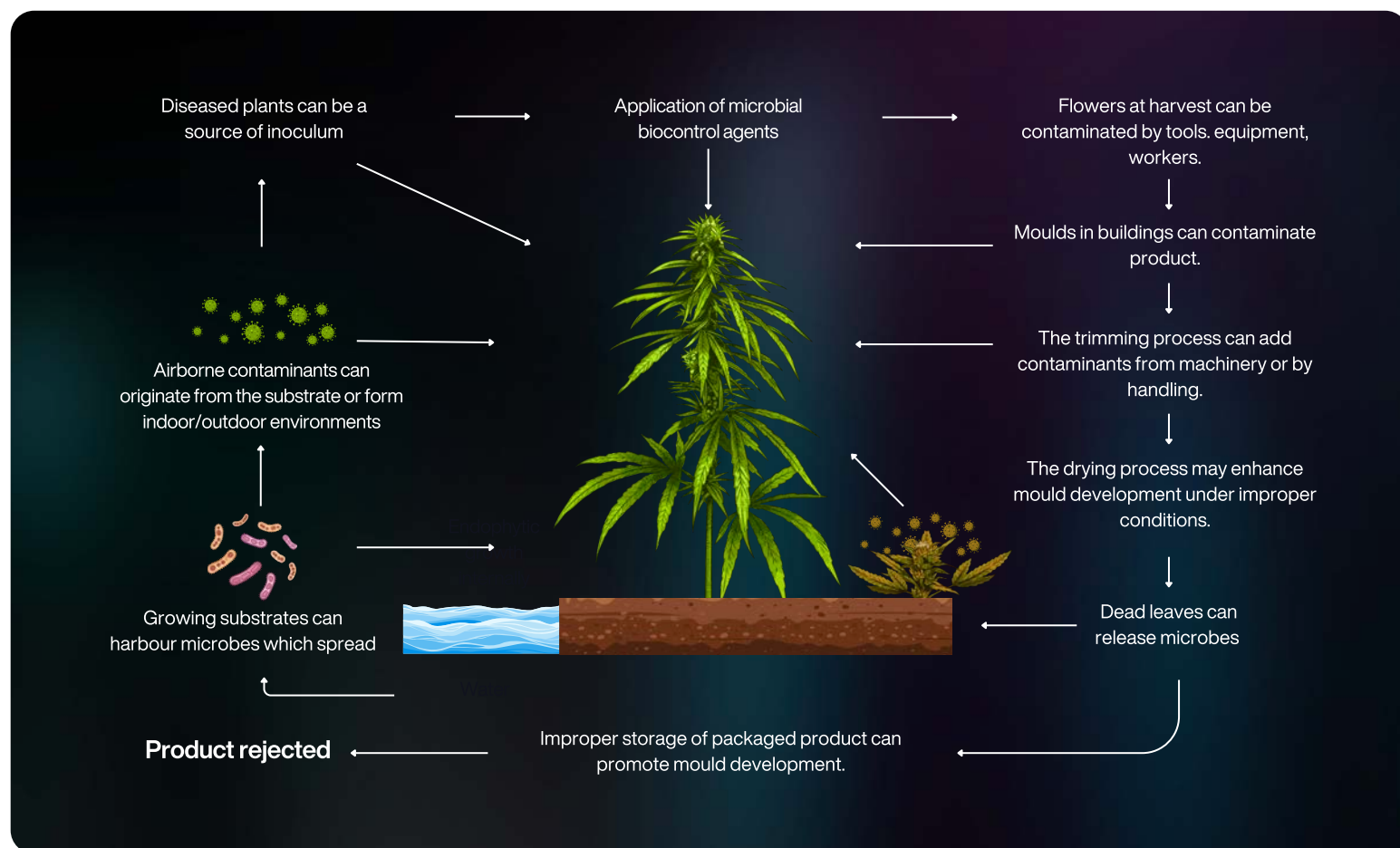
(Please see comparison chart enclosed for further benefits).



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Sources of potential microbial (yeast and mould) contaminants that can reduce post-harvest quality in *cannabis sativa*



Pre Harvest

Before plants reach the harvest stage, microbial pressure can build in the substrate, through airborne inoculum, and within dense canopy areas where humidity pockets form. Targeting these points early reduces the risk of contamination, supports healthy plant growth, and lays the foundation for a cleaner harvest.

Safe Harvest & Processing Practices

During harvest and processing, microbes can spread through equipment, trimming tools, and staff handling. Implementing strict hygiene protocols and minimizing cross-contamination at this stage ensures that microbial populations do not multiply, preserving both yield quality and product safety.

Optimized Drying Conditions

High humidity, dense biomass, and restricted airflow during drying create ideal conditions for microbial growth. Controlling environmental factors and ensuring proper airflow helps to limit microbial pressure, ensuring that the product dries evenly and remains safe for storage.

Secure Storage Solutions

Once dried, biomass is still susceptible to microbial growth if humidity rises or airflow is limited. Monitoring storage conditions and maintaining optimal environmental parameters prevents microbial resurgence, protecting product quality throughout its shelf life.

Hydroxyls against mould

HORTI systems utilise a UV-activated multi-metallic catalyst designed to support continuous environmental control within cultivation spaces.

When activated, the system interacts with naturally occurring humidity and oxygen in the air to generate reactive oxidative species (hydroxyls), which are known to play a role in the natural breakdown of airborne and surface contaminants.

How it works:

- UV light activates the catalyst
- Reaction occurs with moisture and oxygen
- Reactive molecules disperse into the environment

These molecules interact with airborne particles and surfaces, helping to reduce environmental contamination pressure across the space.

Designed for Real Environments:

- Continuous operation in occupied spaces
- Reaches canopy, ducting and substrates
- Supports whole-environment treatment

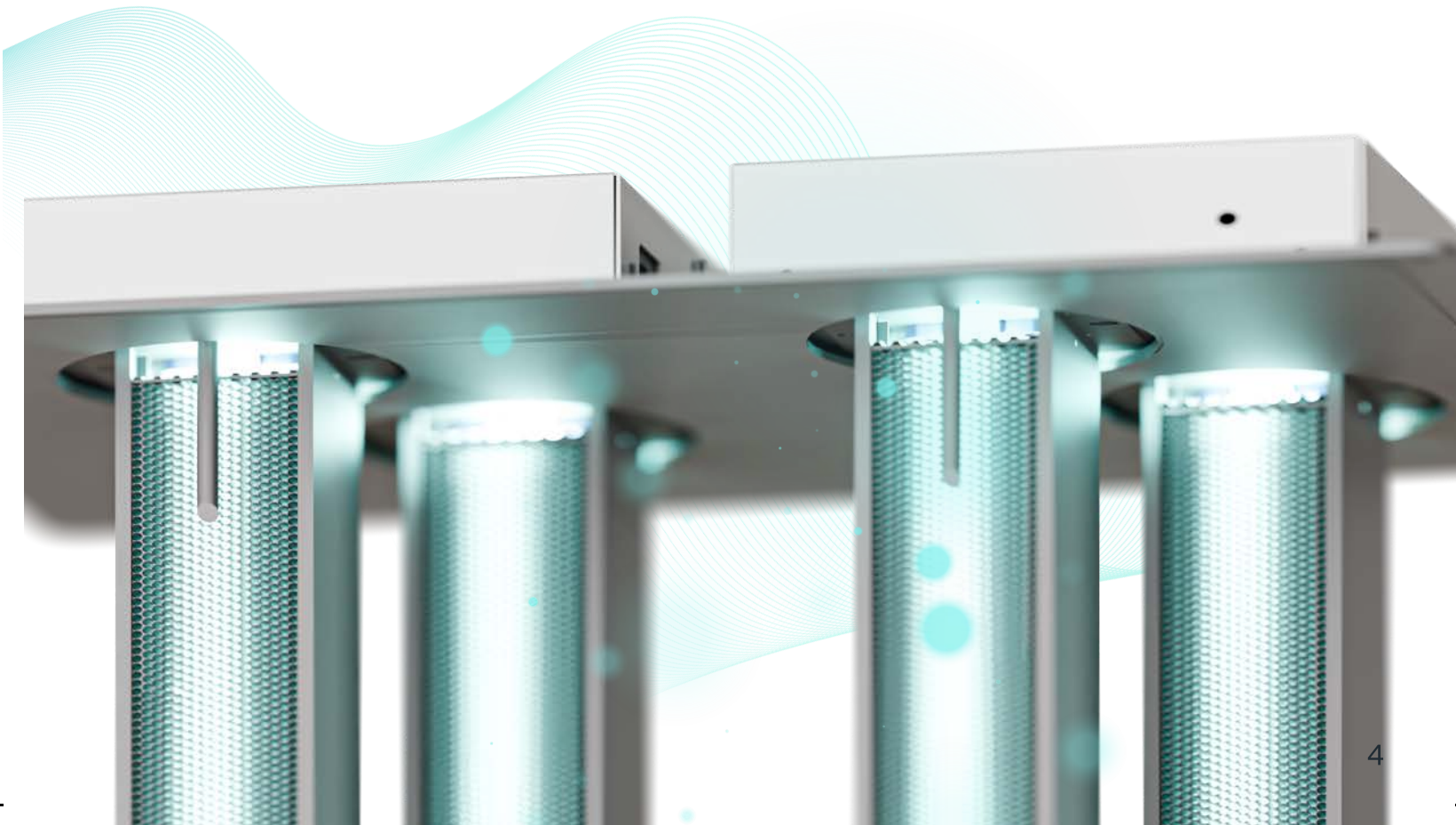
ARC® Quad-Metallic Catalyst

Titanium Dioxide
Acts as the primary photocatalyst.

Copper
Broad-spectrum antimicrobial & catalyst enhancer.

Rhodium
High-efficiency oxidation catalyst.

Silver
Antimicrobial agent.





Key Features

Horti Tent is a compact, active air purification system engineered for enclosed cannabis grow tents and micro-cultivation environments.

In small-volume grow spaces, airborne microbial pressure builds rapidly. High humidity, dense foliage and restricted airflow create ideal conditions for powdery mildew and Botrytis.

Horti Tent reduces airborne spore load at source using **ARC®** technology, actively neutralising fungal contaminants, VOCs and odours while generating controlled hydroxyl levels to stabilise microclimate conditions.

Designed for continuous operation, it protects plant development from vegetative stage through flowering without increasing heat load or disrupting airflow design.

Targeted protection for high-value genetics in enclosed environments.



Size: H 61.92mm x W 52.40mm x D 263.52mm

Weight: 1 lb

Supply Power: 100 -240 VAC

Operating Voltage: 12VDC

Operating Wattage: 12.9W

Operating Amperage: .53A





Reduces Airborne Fungal Pressure

Helps prevent mildew and Botrytis establishment in high-humidity tents.

Protects Yield in Small Grow Volumes

Minimises rapid spore accumulation common in enclosed spaces.

Odour & VOC Neutralisation

Controls terpene-heavy exhaust without restricting airflow.

Continuous Low-Energy Operation

12.9W draw for 24/7 protection.



15m²
Coverage



12.9w
Energy efficient



Helps reduce
mould presence



Quiet
operation

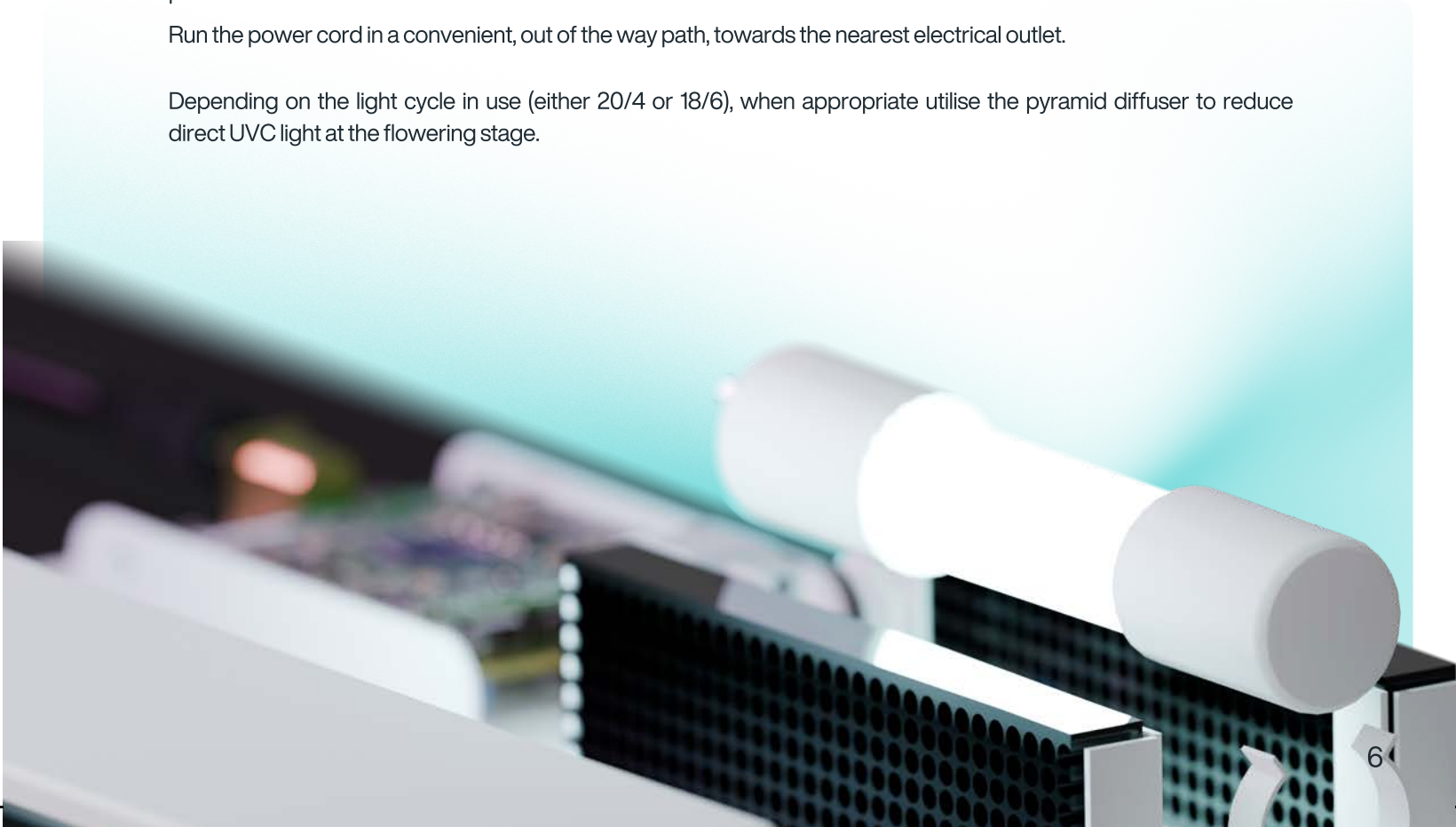
Easy to Install

Place the Horti Tent in an area with direct airflow and make sure that the airflow is passing freely through Horti Tent's ARC® Cell.

Connect the power supply cord by inserting the plug into the Horti Tents power inlet and rotate to lock it in place.

Run the power cord in a convenient, out of the way path, towards the nearest electrical outlet.

Depending on the light cycle in use (either 20/4 or 18/6), when appropriate utilise the pyramid diffuser to reduce direct UVC light at the flowering stage.





Key Features

Horti Dry is a dedicated air purification system engineered for cannabis drying, bucking and trimming rooms, the stage most vulnerable to microbial failure.

Elevated humidity, dense flower structure and reduced airflow during drying significantly increase mould risk. Failed microbial testing at this stage can result in full batch rejection.

Horti Dry combines HEPA filtration and active purification to reduce airborne spores, while an integrated air sensor with traffic-light indicator provides immediate environmental visibility.

Designed to support contamination control in critical post-harvest environments, it also enables system qualification, validation and ongoing performance monitoring.

It protects terpene retention, batch integrity and post-harvest compliance.

Critical protection for the final stage before market.



Size: 60.9cm H x 28.7cm W x 28.7cm D
Weight: 14.5 lbs (6.58 kg)
Supply Power: 100-240VAC | 17W - 62W
Operating Power: 100-240VAC / 50-60Hz



HEPA filter with ODOGard®

Captures airborne spores and eliminates odours during drying.

Active Microbial Neutralisation

Reduces fungal pressure during high-risk post-harvest stage.

Integrated Air Quality Sensor

Instant visual indication of environmental status.

Auto Mode

Automatically adjusts output based on detected contaminant levels.



30m²
Coverage



17W - 62W
Energy efficient



Helps reduce
mould presence



Integrated
sensor (optional)



App connected

One app to manage all of your units remotely. Monitor humidity and temperature in your drying room.



Auto Mode

Intelligent air sensor technology. The Horti Dry will adjust its output depending on the contaminants detected.



Designed to reduce

- Failed microbial tests
- Remediation costs
- Post-harvest crop loss





Key Features

Horti Plus is a commercial-grade air purification system designed for controlled cannabis cultivation rooms up to 62m².

Airborne yeast and mould contamination remains one of the leading causes of crop rejection in regulated markets. **Horti Plus** actively reduces microbial load, neutralises VOCs and supports environmental stability throughout vegetative and flowering stages.

By lowering airborne contamination pressure, **Horti Plus** helps protect flower integrity, reduce remediation risk and support consistent microbial compliance outcomes.

horti SMART

Optional extra horti smart integration enables real-time environmental monitoring across temperature, humidity, CO₂ and particulate levels.

Active air defence for commercial grow rooms.



Size: 376mm H x 337mm W x 101.7mm D
Weight: 5lbs (2.27kg)
Supply Power: 100-240VAC | 21W
Operating Power: 24VDC | 0.77A



Protects High-Density Flowering Rooms

Supports canopy stability during peak biomass cycles.

Scalable Wall-Mounted Installation

Ideal for non-ducted commercial grow environments.

Supports Compliance Testing

Helps reduce risk of failed TYMC and microbial screening.

Microbial Load Reduction

Lowers airborne spore concentration to protect harvest quality.



62m²
Coverage



14w – 22w
Energy efficient



Helps reduce
mould presence



Eliminates
odours

horti
SMART

Horti Smart introduces a new generation of sensor technology for horticulture, available as an optional upgrade to Horti Plus it delivers full environmental diagnostics across your grow facility.

Real-time data on temperature, humidity, CO₂, light and more including optional H₂O₂, enabling precise environmental control for high-value cannabis cultivation.



Temperature



Humidity



CO₂



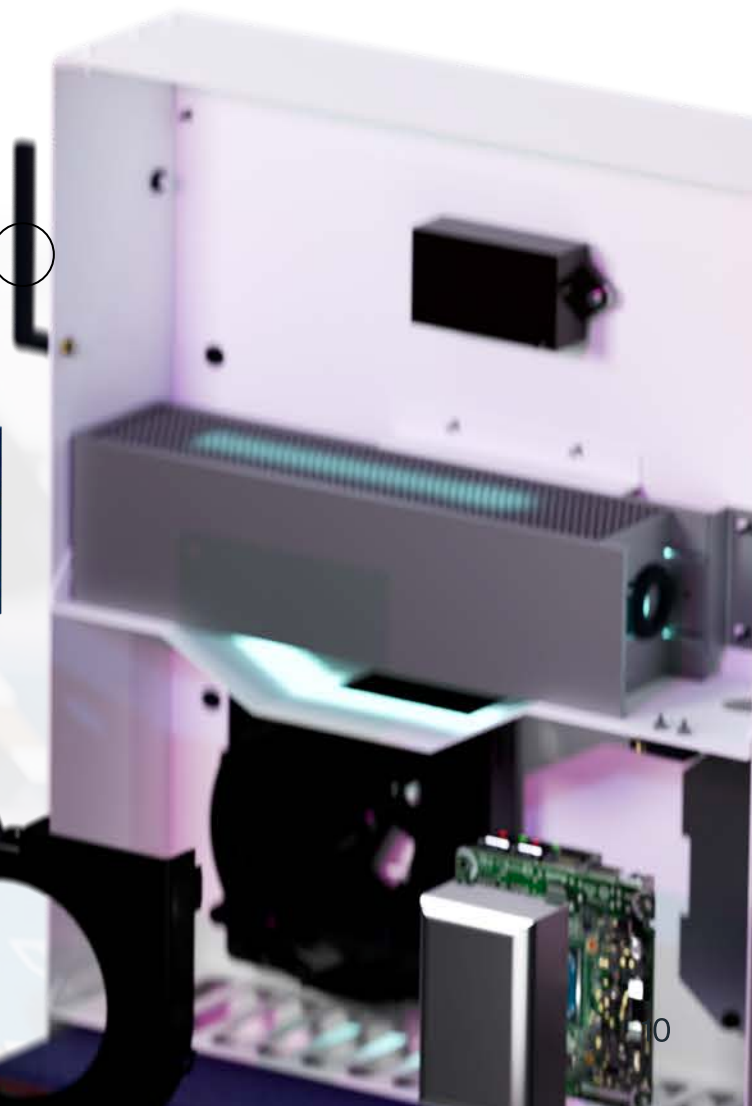
light



Particulates



Real time
data





Key Features

Horti HVAC is a commercial-scale purification system engineered for integration within existing HVAC infrastructure in large cultivation facilities.

Installed directly into ductwork, it provides facility-wide reduction of airborne mould spores, microbial contaminants and VOCs across multiple grow zones. An integrated Lightbox, exclusive to Horti HVAC, fully encloses the purification cell, enabling continuous 24/7 operation while eliminating light spill and preserving strict dark-cycle conditions.

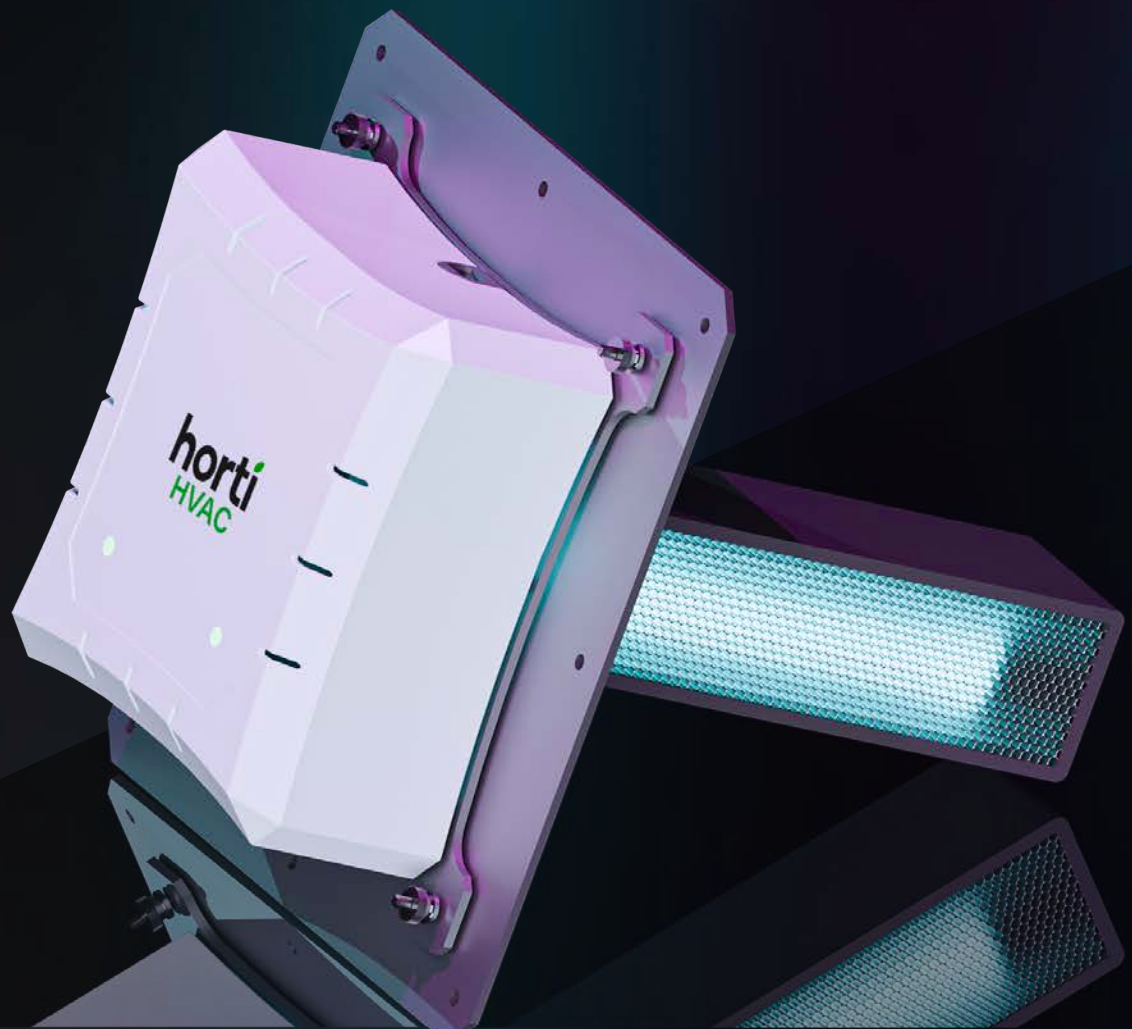
By limiting biological buildup within ducts and circulation systems, Horti HVAC also protects HVAC assets, reduces cross-contamination between rooms and supports long-term environmental stability.

Infrastructure-level protection for regulated cannabis production.

Size: 9-inch cell / 14-inch cell / Dual

Weight: 5lbs (2.27kg)

Supply Power: 24 - 120V / Dual =120-240V | 17W - 38W



Whole Facility Treatment

Purifies circulated air across vegetative flowering and processing zones.

Reduces Cross-Contamination

Limits spore transfer between cultivation rooms.

Easy to Install

Easy to monitor and maintain, providing peace of mind with minimal effort.

Protects HVAC Systems

Reduces microbial buildup in ducts and components.



30-70m²
Coverage



17w - 38w
Energy Efficient



Helps reduce
mould presence



Quiet
Operation

LABORATORY TEST REPORT

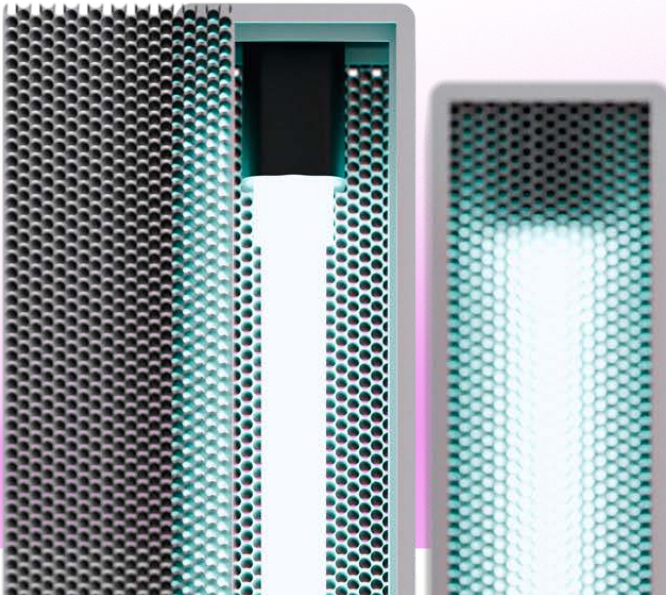
All laboratory activities were performed by QC Laboratory of TNR Bioscience Co.



Parameter	Test Method	Specification	Result	Unit	LOD
Microbial Enumeration					
Total AerobicMicrobial Count (TAMC)	In-house method TNR-ML-TM-10 based on Ph.Eur. 2.6.12	Nonspecific	150	cfu/g	N/A
Total Combined Yeasts & Molds Count (TYMC)		Nonspecific	1.1 x 10 ³	cfu/g	N/A
Specified Microorganisms					
Bile-tolerant Gram-negative bacteria	In-house method TNR-ML-TM-11 based on Ph.Eur. 2.6.13, 31 In-house method TNR-ML-TM-11 based on Ph.Eur. 2.6.13	Nonspecific	< 10 ² and > 10	cfu/g	N/A
Staphylococcus aureus		Nonspecific	Absent	per 1 g	N/A
Pseudomonas aeruginosa		Nonspecific	Absent	per 1 g	N/A
Escherichia coli		Nonspecific	Absent	per 1 g	N/A
Salmonella spp.		Nonspecific	Absent	per 25 g	N/A

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Key Features

Horti Canopy delivers targeted air purification directly above dense cannabis canopy zones, where fungal risk is highest during peak flowering.

As biomass increases, humidity pockets form within flower structures, creating ideal conditions for Botrytis and mould development. Ceiling-level or duct-level treatment alone does not address this concentrated spore layer.

Horti Canopy reduces airborne microbial pressure at canopy height, protecting flower integrity during the most vulnerable stage of development.

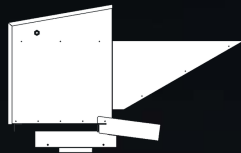
Designed for high-density, high-value flowering environments.

Size: 635mm H x 673mm W x 597mm D

Weight: 80 lbs (36.3 kg)

Supply Power: 115VAC / 143W

Operating Power: 115VAC / 1.30A



Ideal for SCROG systems, multi-tier rack cultivation and high-density flowering rooms, Horti Canopy delivers targeted air purification directly above dense biomass zones, helping reduce airborne fungal pressure where flower concentration and humidity levels are at their peak.

Canopy-Level Spore Reduction

Targets airborne contamination where flower mass is concentrated.

Protects During Peak Flower

Supports stability during late-stage high-humidity cycles.

Reduces Batch Loss Risk

Helps prevent bud rot outbreaks in dense colas.

Continuous Operation

Designed for long-cycle commercial deployment.



140m²
Coverage



Energy
efficient



Helps reduce
mould presence



Integrated
sensor option



We don't believe in one-size-fits-all solutions.

Our roots are in commercial and healthcare air purification — environments where precision, reliability and compliance are non-negotiable. Today, we bring that same mindset into horticulture, supporting facilities that are committed to operating at the highest standards.

Every facility is unique. That's why we take a consultative approach — working alongside your team to understand your environment and design a solution that fits your process.

We collaborate with trusted partners where needed, because we believe the future of this industry depends on raising standards together.

When our clients succeed, the industry moves forward.

horti
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