

TECHNICAL REPORT: TS SERIES

Advanced Vertical Aeroponic Systems | Models TS40 & TS60

1. System Identity & Scaling

The TS Series is a modular commercial cultivation system engineered for high-output indoor agriculture. Built on a foundational 6-tower aluminum array, the system scales horizontally to accommodate up to 42 towers per run.

Specification	TS40 (Standard)	TS60 (Extended)
Vertical Height	10 Feet	15 Feet
Planting Sites	40 Sites	60 Sites
LED Configuration	4x 5' Vertical Bars	6x 5' Vertical Bars
Array Density	240 Plants / 6-Tower Unit	360 Plants / 6-Tower Unit

2. Hydraulic Dynamics

Inverted Heavy Rain Delivery

Every tower utilizes a **Senninger i-mini-Wobbler 1/2" Inverted nozzle (1/8" size)**. Unlike traditional misting, this creates a high-kinetic "heavy rain" environment that ensures 100% root zone saturation and high oxygen exchange.

The 39 GPM Vacuum Effect:

A 1.5 HP pump delivers 39 gallons per minute to each tower. This creates a powerful internal vacuum that forces environmental CO₂ into the root system, augmenting traditional leaf-based photosynthesis.

3. Biological Results

By optimizing CO₂ intake via the roots and providing highly soluble nutrients, the TS Series achieves a proprietary energy diversion ratio:

- **70% Canopy Growth:** Accelerated development of harvestable biomass.
- **30% Root System:** Minimalist, high-efficiency root mass.

4. Reservoir Integration

A single 180-gallon fiberglass reservoir (48"x72"x16") supports 60 towers. This closed-loop setup is the primary interface for the IAS1200 controller.