

DWC Hydroponic Greenhouse System

10 × 39 m Fixed Vent Solo · Two 4 × 36 m Tanks

Deep water culture delivers continuous harvests of lettuce and leafy greens.

A complete deep water culture greenhouse design: two 4 × 36 m insulated tanks holding 86,400 L in a 10 × 39 m greenhouse, with aeration, circulation, UV-C, chilling and automated dosing.

Greenhouse

10 × 39 m

Water Volume

86,400 L

Water Depth

30 cm

Water Temperature

20–22 °C



Features

- A large water volume keeps temperature, pH and nutrient levels stable, and plants stay in water if the power fails.
- The tanks are built from insulated 75 mm PU/PIR sandwich panels, so chillers run 60% less than with concrete tanks.
- The panel system cuts installation labour by 70% compared with concrete.
- Two 1.5 HP regenerative blowers run 24/7, with airlines every 1.2 m.
- Water circulates front to back at about 15,000 L/h per tank through a 130-micron disc filter, UV-C and a chiller.
- An OXYGRO-Inline Quantum Flow unit automates EC/pH dosing.
- A nano bubble generator dissolves oxygen three times more efficiently.

Who It Is For

Commercial producers of lettuce, leafy greens and herbs who want a forgiving, continuous-harvest hydroponic system with stable water conditions.

Layout and Water

Parameter	Value
Greenhouse	10 × 39 m Fixed Vent Solo
Tanks	2 × (4 m × 36 m)
Centre Walkway	2 m (harvest carts)
Equipment Space	1.5 m at each end
Water Depth / Wall Height	30 cm / 40 cm (10 cm freeboard)
Water Volume	43,200 L per tank · 86,400 L total

Tank Construction

Component	Specification
Walls	75 mm PU/PIR sandwich panel · 0.5 mm steel skins · 400 mm high
Floor Track	77 mm galvanised U-channel · 2 mm
Top Cap	77 mm galvanised U-channel · 1.5 mm
Floor Insulation	50 mm XPS boards
Waterproofing	400 gsm geotextile + 1 mm PVC liner
Anti-Bowing Stakes	40 × 40 mm galvanised · every 2 m · 600 mm in ground, 400 mm above

Specifications continue overleaf.

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Water Management

System	Specification
Aeration	2 × 1.5 HP regenerative blowers (one per tank) · 6 mm airlines every 1.2 m to air stones
Circulation	2 × 1.0–1.5 HP centrifugal pumps · about 15,000 L/h per tank · 2-inch (50 mm) PVC
Turnover	Every 3–4 hours
Filtration	130-micron disc filter · washed weekly
Disinfection	Inline UV-C · 99.9% pathogen elimination
Cooling	Commercial chiller · 20–22 °C (root-disease risk rises sharply above 24 °C)
Dosing	OXYGRO-Inline Quantum Flow · EC/pH probes · compatible with BlueLab, Hanna and Netafim controllers
Nano Bubble Generator	3× more efficient oxygen dissolution · 24-hour oxygen stability

Rafts

Parameter	Value
Material	High-density XPS
Size	1.2 m × 0.6 m × 3 cm
Net-Pot Holes	18–28 per raft

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