



Technical catalogue of Plant growth Chamber (Model-SET4THL)

1 Key Technical Specifications:

1.1 Climate simulation specifications:

- 1.1.1 Interior dimension in inch (app): 40"Lx88"Wx88"H
- 1.1.2 Exterior dimension in inch (app): 48"Lx96"Wx96"H
- 1.1.3 Temperature range: 5° - 40° (5-40 Lights OFF & 10-40 Lights ON)
- 1.1.4 Relative humidity range between 21°~35°: Ambient to 80%RH
- 1.1.5 Temperature accuracy: $\leq 0.5^{\circ}$
- 1.1.6 Humidity accuracy: $\pm 6\%$ RH
- 1.1.7 Growth Area per tier 6 sq.ft (2 shelves * 2 tier) = 24 sq.ft.
- 1.1.8 Growth Height between the light and shelf in the single tier: 22 inches

2 Cabinet Structural Features:

- 2.1 Exterior shell materials : GI Pre Painted plate
- 2.2 Interior shell materials : GI Pre Painted plate
- 2.3 Interior Floor : Puff Panel floor with SS Chequered sheet
- 2.4 Heat insulation materials: Hard Poly Urethane foamed plastic of 4" thickness
- 2.5 Single wing door with inner viewing window facility with lock and key and fitted with sweeping gasket and glass with light tight cover

3 Air-conditioning System:

- 3.1 Regulation and control: Dual discharge refrigeration unit with air flow distributed evenly from perforated side walls. Recirculation by suction from the cooling coil in the ceiling.
- 3.2 Ceiling suspended Cooling unit with fans fixed in the centre. Cooling coil will be on both the sides and fans ensuring the temperature circulation are from both the sides
- 3.3 The conditioning system contains all necessary fans, heaters and valves.
- 3.4 Heating: Stainless steel sheated heater(surface evaporating system)
- 3.5 One number 50mm port hole will be provided with cap
- 3.6 Panic alarm with buzzer will be provided for user safety
- 3.7 Auxiliary Power supply socket with switch will be provided
- 3.8 Blower control for fresh air purging is provided with exhaust duct

4 Humidity control:

- 4.1 Relative humidity range: Ambient RH up to 80% RH shall be provided
- 4.2 Humidity uniformity: between $\pm 6\%$ RH
- 4.3 Humidifier: Humidification system with necessary water reservoir assembly



5 RO water purifier for Additive Humidity (One RO Unit)

- 5.1 Suitable RO water purifier unit for producing purified water for additive humidity shall be provided by us. It will maintain water quality and quantity suitable for additive humidity.

6 Lighting System :

- 6.1 Light intensity is 300 Micromoles measurable with light sensor (measured at 6 “from the light source) in Two tier
- 6.2 Suitable Fluroscent light with ballasts will be provided of wave length for plant growth
- 6.3 Two Numbers of 3.0”L x 2.0”D x 6.0”H shelving systems. Two tier each with individual Light canopy for each tier
- 6.4 Stainless steel shelf with ON/OFF switch is provided for Lights
- 6.5 Programming (Light/Dark) control for the Lamps will be by Controller
- 6.6 The lights will be controlled in Level mode (0 level-All tubes OFF, 1level- 40% Tubes ON, 2level-60 Tubes ON, 3level-100% Tubes ON in each canopy) NON DIMMABLE MODE.

7 Cooling System:

- 7.1 Single Compressor systems for maintaining the temperature in chamber
- 7.2 Hot gas by-pass system control is provided for precise climatic control
- 7.3 Condensing unit is charged with CFC free refrigerant
- 7.4 Refrigeration function monitored by controller including visual and audible alarm.
- 7.5 Remote Air condensing unit (RAC): RAC will have manual HP/LP setting for compressor safety and the compressor including condenser will be one assembly.

8 Control system:

- 8.1 The controller will be 7.0 inch touch screen color controller.
- 8.2 The controller will have 16 programmable programs, and each program will have 12 timelines. The temperature, relative humidity, and the lights are independently programmable through the controller.
- 8.3 Temperature sensor: Reading displayed will be average of two sensors (which is more uniform and reliable)
 - 8.3.1 Humidity sensor: Electronic capacitive humidity sensor.
 - 8.3.2 Light sensor: Electronic light sensor
 - 8.3.3 Programmable PLC and Touch Screen controller
 - 8.3.4 Resolution: Temperature: 0.1°, Humidity: 0.1%RH
 - 8.3.5 Set range: Temperature: 5°~40°; Humidity: Ambient up to 80%RH: Light : 0-300 umol.
 - 8.3.6 Audible alarms are included based on user defined limits



9 Security protection system:

- 9.1 Over-temperature protection
- 9.2 Overload protection of motor
- 9.3 Compressor over temperature & pressure protection
- 9.4 Over-load relay for over current protection
- 9.5 Programmable Delay Relay
- 9.6 MCB for control and lighting circuit
- 9.7 Humidity water shortage protection

10 Equipment working condition:

- 10.1 Ambient Environment:
 - 10.1.1 Ambient temperature: $20^{\circ} \sim 35^{\circ}$, Relative humidity: $\leq 75\%RH$
- 10.2 Power supply requirement:
 - 10.2.1 Power voltage: $AC415 \pm 10\%V$ 50Hz, 3-phase + ground wire protection;
 - 10.2.2 Power switch: Air switch (knife-switch not allowed) Max. Current 25A.
- 10.3 Water & air requirement for Humidity:
 - 10.3.1 Water flux: 5l/h, Water pressure: 0.5-2bar, Air pressure: 0-3 bar

11 Servo stabilizer for stabilized voltage:

11.0 Servo Voltage Stabilizer for stabilized input voltage to the chamber shall be provided by us.

12 UPS:

12.0 One suitable UPS per unit shall be provided for controller only.

13 After-sale service:

Charge-free warranty will last for 2 year from the date of equipment delivery. After the warranty period, the user will be charged properly. Irregular examination and life-long service are available.

14 Technical training: Provide Charge-free training to two operators for each user (in user site after installation and commissioning of the equipment).



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16. Accessories: Warranty Certificate, Operation & Maintenance Manual with Circuit diagram: one copy





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