



Technical specification of SET7THL-TP Walk-in Plant Growth Chamber

1 Key Technical Specifications:

- 1.1 Climate simulation specifications:
 - 1.1.1 Interior dimension: 9.4'Wx6.4'Dx7.8'H
 - 1.1.2 Exterior dimension: 10.0'Wx7.0'Dx8.0'H
 - 1.1.3 Plant Growth area: 6'Wx5'D (30Sq.ft)
 - 1.1.4 Total clearance growth height from the floor: 6.0 feet
 - 1.1.5 Temperature range: 18° - 40°
 - 1.1.6 Relative humidity range between 25°~40°: up to 90% RH
 - 1.1.7 Temperature uniformity: $\leq 1^{\circ}$
 - 1.1.8 Humidity uniformity: $\pm 5\%$ RH

2 Cabinet Structural Features:

- 2.1 Exterior shell materials of SET7THL-TP: Pre painted plate
- 2.2 Interior shell materials for SET7THL-TP: Pre painted plate
- 2.3 Interior Floor for SET7THL-TP: Customer provided concrete floor
- 2.4 Heat insulation materials: Hard Poly Urethane foamed plastic of 4" thickness
- 2.5 Single wing door with inner viewing thermal-pane window facility, movable light cover lock and key and fitted with sweeping gasket.

3 Air-conditioning System:

- 3.1 Regulation and control: Air discharge from bottom of side wall and recirculation from the top of side wall
- 3.2 The conditioning system contains all necessary fans, heaters and valves
- 3.3 Heating: Stainless steel sheathed heater (surface evaporating system)
- 3.4 Humidifier: Fogger Humidification system with necessary water reservoir assembly

4 Lighting System:

- 4.1 Light intensity over growth area is 600 Micromoles measurable with light sensor at 6' from the light canopy.
- 4.2 One light canopy of size 6 feet X 5 feet with Valoya led lights six BX series fixtures fixed to ceiling.
- 4.3 LED lights will be of brand Valoya .They are having UV of no more than 2% and the Photosynthetic active radiation is up to the 95%.
- 4.4 Valoya led lights model BX series spectrum for research of all growth stages of plant. The Valoya lights are globally proven and used by many of the world's largest universities, research institutes and agricultural companies.
- 4.5 Light level is dimmable from 0% to 100 % in increments of 5% through the program from controller. The dimming of lights should be programmable thru the controller.
- 4.6 Programming (Light/Dark) control for the Lamps should be controlled thru the controller



5 Cooling System:

- 5.1 Single Scroll Compressor system for maintaining the temperature in chamber
- 5.2 Hot gas bypass system control is provided for precise climatic control
- 5.3 Condensing unit is charged with CFC free refrigerant
- 5.4 Refrigeration function monitored by controller including visual and audible alarm.

6 Control system:

- 6.1 The Schneider controller is 7 inch touch screen color controller.
- 6.2 The controller is having 16 programmable programs and each program have 12 timelines. The temperature, relative humidity, and the lights can be independently programmable through the controller.
 - 6.2.1 . Temperature sensor: We are providing two temperature sensors, The reading displayed will be average of two sensors (which is more uniform and reliable)
 - 6.2.2 Humidity sensor: Electronic capacitive humidity sensor.
 - 6.2.3 Light sensor: Electronic light sensor
 - 6.2.4 Programmable PLC and Touch Screen controller
 - 6.2.5 Resolution: Temperature: 0.1°, Humidity: 1%RH
 - 6.2.6 Set range: Temperature: 18°~40°; Humidity: up to 90%RH
 - 6.2.7 Audible alarms are included based on user defined limits
- 6.3 **Sampling sensor:** Vertically adjustable sensing device located in the growth area directs a continuous sample of chamber air for accurate controlling and recording, unaffected by lamp radiation

7 Security protection system:

- 7.1 Over-temperature protection
- 7.2 Overload protection of motor
- 7.3 Compressor over temperature & pressure protection
- 7.4 Over load relay for over current protection
- 7.5 Programmable Delay Relay
- 7.6 Fuse for control and lighting circuit
- 7.7 Flange Mount Disconnect for Power
- 7.8 Humidity water shortage protection

8 Equipment working condition:

- 8.1 Ambient Environment:
 - 8.1.1 Ambient temperature: 20°~35°, Relative humidity: ≤75%RH



8.2 Power supply requirement:

8.2.1 Power voltage: AC440 \pm 10%V 50Hz, 3-phase + ground wire protection;

8.2.2 Power switch: Air switch (knife-switch not allowed) Max. Current 32A.

8.3 Water requirement for Humidity:

8.3.1 Water flux:5l/h, Water pressure: 0.5-2bar

9 After-sale service:

We have our team of trained engineers to render you efficient and effective after sales service. During the warranty, routine free service shall be extended. Post warranty, you are advised to enter into an Annual Service/maintenance contract with us for proper upkeep of the equipment.

10 Technical training: Provide Charge-free training to operator (in user site after installation and commissioning of the equipment).

11 Accessories:

11.1 Warranty Certificate: one copy

11.2 Operation Manual: one copy

11.3 Maintenance Manual: one copy

11.4 Circuit diagram: one copy