

## SEED GERMINATOR

**elte Vertical Seed Germinator** are used for maintaining and monitoring the temperature between 5°C to 60°C, humidity control between 10 % to 90 % Relative Humidity & lighting conditions specifically for seed germination process. Predominantly these instruments used in the agriculture and allied industries, seed synthesising laboratories, etc. There are four different models based on the volume and user convenience.

### Salient Features:

The outer body has a robust construction of 1 mm thick mild steel with epoxy powder coating whereas the inner chamber is made of corrosion resistant 1 mm thick Stainless Steel 304 Grade. An ergonomic outer door with lock and key is provided in order to prevent unauthorized access. Sturdy castor wheels are fixed at the bottom for mobility of the unit with ease. Stainless Steel shelves are provided. Drain condensate outlet also available in order to drain of condensed water from the bottom of the chamber. Magnetic door gasket ensures complete sealing of the main door.

The seed germinator runs on standard 230 V AC Single Phase 50 Hz power supply. A MCB is present for better electrical safety. Microcontroller based digital PID controller is provided for easy control of internal temperature and humidity. The temperature and humidity controller are auto tuned for better accuracy. The control panel is placed at an easily accessible height for operation. The controller has a readability as well as set temperature increments of 0.1 °C. Audio as well as visual alarms are indicated whenever there is large variation in set temperature or humidity, sensor failure, door kept open, low water level, etc. Interior chamber LED lighting gets activated automatically when the door is opened and turns off when the door is closed. The User Interface is password protected in order to prevent parameter tampering.

Eco-friendly refrigeration system comprises of a low noise highly efficient heavy duty hermetically sealed compressor. The powerful refrigeration system works in tandem with the heating system to ensure temperature stability even in high external ambient conditions. It uses an environmentally friendly HFC refrigerant gas R-134 A which is CFC and HCFC free. The high-density PUF insulation helps to maintain the interior temperature as well as humidity even when there is ambient temperature and humidity variation. PT 100 sensor is used for accurate temperature feedback of the inner chamber. Safety thermostat is available in order to prevent overheating. Maintenance free blower fans enable forced air circulation in order to achieve uniform temperature and humidity distribution and maintain vital operational temperature between 5°C to 60°C and relative humidity between 10 % to 90 % inside the chamber. The blower fans turn off when the door is opened to avoid loss of chilled and humid air from blowing out of the unit. Provision of hot line reduces the condensation on the outer door openings. Steam Injection System helps to adjust the humidity with ease.



## Technical Futures :

MODEL NO.	ESG 100	ESG 200	ESG 300	ESG 400
Temp. accuracy	$\pm 0.2^{\circ}\text{C}$	$\pm 0.2^{\circ}\text{C}$	$\pm 0.2^{\circ}\text{C}$	$\pm 0.2^{\circ}\text{C}$
Temp. Uniformity	$\pm 1^{\circ}\text{C}$	$\pm 1^{\circ}\text{C}$	$\pm 1^{\circ}\text{C}$	$\pm 1^{\circ}\text{C}$
Inner size(mm)	450x450 x500	500x450 x900	550x500 x1100	600x560 x1200
No. of Trays	3	4	5	6

## Sailent features :

- Manufacturing as per CE standards.
- GMP Models also available (Outer SS 304 1 mm thick & Inner SS 304 1 mm thick)
- Double Walled vacuum Glass door.
- Inner Transparent Door with latches
- Height adjustable shelves
- Stand By Refrigeration System
- Stand By Humidity System
- Door Access Security System
- Self Closing Doors
- Battery Backup for display for 10 Hours along with Power Failure Alarm.
- Temperature and Humidity Scanner 4 + 4 with USB Printer Port
- 21 CFR Part 11 Compliant Software.
- Mobile alert via GSM in case of system malfunction.
- IQ, OQ, PQ, DQ, calibration, validation and traceability documentation can be provided as per FDA protocols.

## Calibration :

All models are calibrated with the help of master calibrator which is certified for its accuracy by Electronic Regional Test Laboratory Mumbai.