

CONTROLLED ENVIRONMENTS FOR
SEED STORAGE
SEED GERMINATION & INCUBATION



Convion is the world's leading designer and supplier of reach-in plant growth chambers, walk-in rooms and customized controlled environments. Our chambers for seed testing and storage provide precise, uniform, and repeatable control of critical environmental parameters including temperature, light and humidity - all of which can be remotely programmed, monitored for accuracy, convenience and long-term stability.

SEED STORAGE ROOMS

For seed companies that require environmental stability for their seed collections, Convion seed storage rooms offer a high volume solution that provides precisely controlled temperature and humidity using reliable, robust refrigeration systems for long-term performance.

Our Seed Storage Rooms are based on a modular platform that can be custom-sized for specific applications. Long term seed storage conditions are typically set to -18°C while medium term collections are stored at 4°C and 30 - 50% relative humidity.

Due to the low temperature operation, a chemical dryer is used for dehumidification. Several different cooling methods are available and complete mechanical system redundancy can be provided for assurance of long term-stability.



Walk-In Seed Storage Room



GEN1000-GE Seed Germinator

SEED GERMINATION CHAMBER

For seed labs requiring a high throughput chamber for germination testing, the GEN1000-GE chamber provides consistent, uniform conditions for a wide range of seed testing protocols.

With a temperature range from 4°C to 45°C, seeds can be pre-chilled to overcome dormancy. The GEN1000-GE provides up to 98% relative humidity to ensure adequate moisture is available for germination, while horizontal airflow ensures uniformity throughout the growing area.

Externally-mounted fluorescent lights provide balanced intensities at all temperatures for consistent germination. Shelving is vertically adjustable to accommodate all germination methods including paper, soil, and containers. Its compact footprint – less than 1 m² (9.25 ft²) - is ideal for labs where space is limited.

INCUBATION CHAMBER

For plant scientists who require low light and adjustable growth height for growing plantlets, the GEN1000 IN offers an economical and flexible solution as an incubation chamber that can be reconfigured for other applications, including entomology research, tall and short plant growth and tissue culture.

With a temperature range from 4°C to 45°C and humidity up to 90%, plantlets can be incubated under energy efficient LED lighting or optional fluorescent lighting on four adjustable shelves that provide up to 216 mm (8.5") of growth height. Air is delivered horizontally from the rear wall plenum to provide uniform environmental conditions to ensure consistent growth.



GEN1000 IN Seed Incubator





GEN2000 IN Seed Incubator

INCUBATION CHAMBER

Built on the same platform as the GEN1000, the GEN2000 offers double the space yet all the same flexibility. Like the GEN1000, the GEN2000 is ideal for plant scientists who require low light and adjustable growth height for growing plantlets. The GEN2000 also offers an economical and flexible solution as an incubation chamber that can be reconfigured for other applications, including entomology research, tall and short plant growth and tissue culture.

With a temperature range from 4°C to 45°C and humidity up to 90%, plantlets can be incubated under energy efficient LED lighting or optional fluorescent lighting on four adjustable shelves that provide up to 216 mm (8.5") of growth height. Air is delivered horizontally from the rear wall plenum to provide uniform environmental conditions to ensure consistent growth.

LOW TEMPERATURE SEED STORAGE

The type of seed, its value and the anticipated time period for storage are all important factors in designing refrigeration systems for seed storage rooms:

Low Temperature:

- Refrigeration system enables the chamber to be operated with lights ON to **+2°C** (No fresh air below 4°C)
- A defrost cycle will occur resulting in a temperature increase (spike) for temperatures set below +8°C lights ON/OFF

Ultra-Low Temperature:

- Refrigeration systems enables the chamber to be operated with lights ON to **-10°C** (No fresh air below 4°C)
- A defrost cycle will occur resulting in a temperature increase (spike) for temperatures set below +8°C lights ON/OFF

Sequential Defrost Solution:

- A multi-stage evaporator defrost system eliminates the temperature spike associated with a single evaporator system and ensures constant low temperature operation

Dual Refrigeration:

- Independent refrigeration systems with multiple evaporators alternate between defrosting and cooling modes, or work together (if necessary) to reach the desired set-point temperature



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CE_{MS} Management System Certified to ISO 9001

Seed Storage Brochure, 2024, MK0046, rev 05

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