

Cell Assembly & Sealing System

Features and Specifications



Modular Test Cell Assembly

The Cell Assembly & Sealing System (CASS) is a robotic product that enables battery technology labs to:

- Eliminate human error in cell assembly, significantly improving data quality.
- Reduce operational costs associated with skill barriers and staff time.
- Accelerate discoveries across research, development, and quality control.

Cellerate have designed the CASS to assemble and seal small coin and pouch cells commonly used in the development of battery materials and electrolytes. By automating this process, battery researchers can save time, gather more data, and gain new insights.

The CASS can be used across the entire battery testing ecosystem, from fundamental battery research up to industrial production quality control, and allows for reliable technology transfer between departments and organisations.

With its modular design, the CASS can easily be installed in a standard 2-port glovebox via the large antechamber, and upgraded or expanded to suit user needs. It has been designed for safe use in an argon atmosphere, and the power cable is adapted to pass through a glovebox KF-40 port.



Sealer Module

The Sealer module crimps coin cells as standard, and can be upgraded to also seal pouch cells

Features

- High quality coin cell crimper
- Swap between coin and pouch cell sealing in under 5 minutes
- Automatic coin ejection system
- Multifunctional: Press, heat, vacuum
- Custom pouch sizes available
- Use as standalone unit or automated system module

General Specifications

- Compatible with all standard coin cell sizes
- Adjustable crimping force up to 10 kN
- Suitable for use in argon glovebox
- Compatible with vacuum antechamber
- Power safety interlock on guard panel
- Dimensions: (W x H x D): 301 x 301 x 190 mm
- Weight: 12 kg
- Operating voltage: 24 V
- Peak power draw: 100 W
- Nominal power draw: 10 W
- Ambient Temperature: 10-30°C

Pouch Sealing Specifications

- Core specifications same as base model
- Build single layer pouch cells with up to 50 x 60 mm electrode area
- Force adjustable: 0.5-2.0 kN
- Temperature: 120-170°C (top/bottom separately configurable)
- Vacuum level:
 - Internal pump: 0.1 bar
 - External pump compatible



Assembler Module

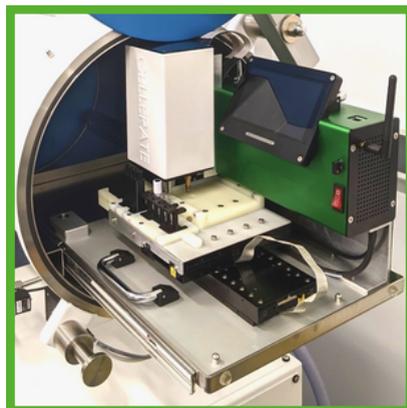
The Assembler module uses machine vision to accurately stack cell components

Features

- Capable of assembling both coin cells and single-layer pouch cells
- Reliable cell assembly with less than 0.1 mm component misalignment
- Cell build quality report automatically generated
- Create, save, and load cell build routines which are completely customisable
- Automatic swapping between vacuum heads and micropipette tips to minimise cross-contamination
- Argon glovebox compatible; fits through standard large antechamber

Specifications

- Assembles approximately 10-24 cells per hour depending on build procedure
- Compatible with pure Li and Na metal electrodes for half-cell configurations
- Compatible with all common separator materials, including PP based
- Compatible with all common electrolytes
- Compatible with curved electrodes
- Automated 5-200 μ L micropipette for electrolyte
- Removable racks can hold up to 4, 10, or 20 vials (each 2 mL)
- Wi-Fi, Ethernet and USB ports for data transfer and software updates
- API for external process control and database interaction
- Operator collision detection with safe stop
- Connects to and controls the Sealer and Autoloader modules
- Dimensions (W x H x D):
380 x 290 x 275 mm
- Weight: 10 kg
- Operating voltage: 24 V
- Peak power draw: 60 W
- Nominal power draw: 20 W
- Ambient Temperature: 10-30°C



Autoloader Module

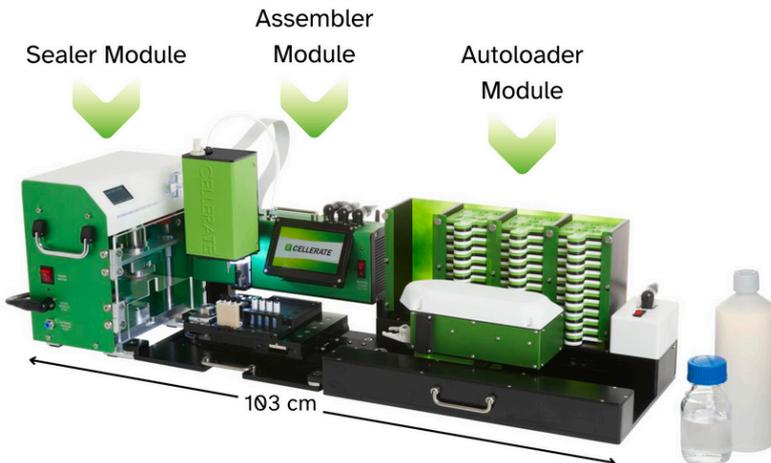
The Autoloader module enables 100 cells to be built unattended as standard, and can be expanded to build more

Features

- Build 100 cells automatically using tray loading mechanism
- Create, save, and load cell build routines for batch cell building
- Make every cell unique to explore parameter space

Specifications

- Set-up time approximately 1 minute per cell
- Unattended run time approximately 4-6 minutes per cell
- Compatible with both coin cells and Protocells
- Tray tagging for easy cell identification
- Compatible with vacuum antechamber of standard glovebox
- Operator collision detection with safe stop
- Dimensions (WxHxD): 510 x 255 x 330 mm
- Weight: 10 kg
- Operating voltage: 24 V
- Peak power draw: 40 W
- Nominal power draw: 5 W
- Ambient Temperature: 10-30°C



**For inquiries,
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