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# How Cellerate Delivers Value Across Quality Control, R&D, and Industrial Applications

Battery research and quality control demand precision, repeatability, and efficiency. Traditional manual cell assembly is prone to variability, inefficiencies, and wasted resources. Cellerate's Cell Assembly & Sealing System (CASS) eliminates these challenges, delivering consistent, high-quality cells without operator intervention.

By automating the assembly process, CASS enables repeatable research, faster testing, and improved lab productivity. Leading research institutions and industrial R&D labs have validated these benefits as exemplified below.

## Saving Time & Maximising Lab Resources

### The Challenge:

Battery R&D labs spend significant time on manual cell assembly, which limits scientific output. Skilled technicians are tied to repetitive tasks rather than focusing on high-value research.

### How Cellerate Solves It:

Cellerate's automation reduces staff time by up to 90%, freeing researchers to focus on material development and data analysis. With the Autoloader Module, labs can run unattended workflows, increasing throughput without additional staffing.

### Customer Success Stories:

**IBU-tec:** *"Within the first few weeks of installation we were able to build 150 cells per week and save 6 hours of staff time weekly. The automation allows us to scale up to 200 cells per week while keeping labour costs steady."*

**Vianode:** *"Our lab technicians now spend less time in the glovebox, focusing on reporting and high-value tasks while the robot handles cell fabrication."*

**INM:** *Previously, assembling large batches of cells was a time-consuming, manual process. Now, our team can focus on complex experiments rather than routine assembly."*

## Improving Data Quality & Repeatability

### The Challenge:

Manual assembly leads to variability in electrolyte dosing, component alignment, and cell crimping, causing unreliable data. Inconsistent results slow down material validation and require additional experiments.

### How Cellerate Solves It:

Cellerate's machine vision and precision automation ensure every cell is built to exact specifications, eliminating operator inconsistencies. Every step is logged for full traceability, allowing researchers to review past builds and validate findings.

### Customer Success Stories:

**Vianode:** *"Our team of 8 technicians, each with different experience levels, now produces consistent, high-quality cells with minimal variation."*

**C4V:** *"Data from Cellerate-made cells consistently showed more consistency and outperformed hand-assembled cells. The repeatability in electrochemical results allows us to make informed decisions faster."*

**INM:** *"With traceability built into every cell, we no longer question whether data inconsistencies come from materials or assembly. The system ensures every step is documented, improving our confidence in the results."*

## Reducing Costs & Minimising Waste

### The Challenge:

Material waste in battery R&D is costly. Failed cells from human error, misaligned electrodes, electrolyte overfill, or poor sealing led to wasted time and resources.

### How Cellerate Solves It:

CASS uses machine vision to ensure precise electrode stacking, and a robotic micropipette for accurate electrolyte dosing, dramatically reducing the likelihood of defective cells. This means less rework, fewer wasted components, and lower costs per experiment.

### Customer Success Stories:

**C4V:** *"The rate of shorted cells dropped significantly, saving us both materials and time. In a high-throughput environment, these savings are substantial."*

**IBU-tec:** *"Since switching to Cellerate, our coulombic efficiency and discharge capacities have improved, thanks to better electrode alignment and fewer failed cells."*

## Seamless Integration & Scalability

### The Challenge:

Many automation solutions are bulky, complex, and require significant lab modifications. Labs need a scalable, modular system that integrates into existing workflows, including glovebox environments.



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### **How Cellerate Solves It:**

CASS fits in most 2-glove gloveboxes and can be expanded according to need with the Sealer, Assembler, and Autoloader modules.

### **Customer Success Stories:**

**INM:** *"Implementation was seamless, Cellerate's team provided full support, and our researchers were trained within days."*

**Vianode:** *"We can now scale up cell production without increasing staff overhead, thanks to the modular automation system."*

## **Why Labs Choose Cellerate**

- 80% Reduction in staff Time
- Improved Data Quality & Reproducibility
- Lower Costs & Material Waste
- Scalability for Future Growth

### **Want to optimise your battery R&D?**

Visit [www.cellerate.co.uk](http://www.cellerate.co.uk) to learn more.