



PROTOTYPING AND CELL MANUFACTURING

**CIC
energi
GUNE**

MEMBER OF
BASQUE RESEARCH
& TECHNOLOGY ALLIANCE

PROTOTYPING AND CELL MANUFACTURING

The prototyping of cells for batteries and supercapacitors is a critical step in advancing the technology, for example, through high voltage cathodes, solid-state batteries, validation of new materials, concepts, manufacturing processes, and battery geometries. In this way, technological development is accelerated by bringing new ideas that are in the state of the art of electrochemical storage to the market.

CIC energiGUNE is a European reference center with one of the best prototyping lines in Europe. CIC energiGUNE's cell manufacturing line allows complete validation of the materials and manufacturing processes of different cell technologies: pouch, cylindrical, flexible, semi-flexible. The center is also a leader in the manufacture of solid-state batteries, promoting the arrival on the market of this technology, which is so essential for electromobility.

One of the differential aspects of this line of prototyping cells is that it has the entire manufacturing process of batteries and capacitors in a dry room environment with minimum humidity. This feature of the room can be used on-demand and allows working with any current or future technology: sodium-ion (Na-ion), lithium-ion (Li-ion), metal-air, lithium-sulfur (LiS), etc. Additionally, this service can scale cathode, anode, and electrolyte materials in quantities necessary for the industrial pre-prototyping of electrochemical cells. Such scaling services can also be offered for solid state batteries.

This platform also allows the validation of materials and manufacturing processes developed by the industry and the characterization of the results through one of the best characterization platforms and experts in Europe.

WHAT CAN WE DO?



- Prototyping of batteries and supercapacitors both coin-cell, pouch-cell, cylindrical.
- Possibility of working in a humidity-free environment with a dew point of -60 °C.
- Scaling of cathode, anode and electrolyte materials in sufficient quantities for industrial pre-prototyping.
- Formulation and characterization studies of inks in a dry environment or in environmental conditions according to requirements.
- Lamination of inks on roll-to-roll substrates or in pre-cut formats.
- Manufacture of electrodes for electrochemical storage devices.
- Calendering of electrodes and adjustment of their porosity for electrochemical storage devices.
- Study and adjustment of mass balance between negative and positive electrode.

FOR WHO?



Companies that manufacture materials and components for batteries and supercapacitors



Manufacturers of batteries and supercapacitors.



Developers and integrators of batteries and supercapacitors



Research centers and business research units.

WE OFFER

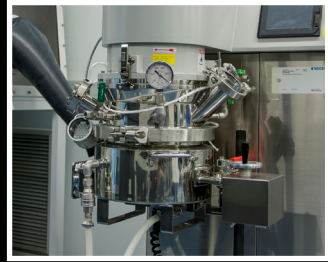
- Ability to develop customized battery cells and supercapacitors 100% oriented to a specific application.
- Benchmarking of technologies for batteries and supercapacitors. Validation of materials, components, and manufacturing processes.
- Scale-up of cathode, anode and electrolyte materials, both proprietary and third-party formulations.
- Processing of new cathode, anode and electrolyte materials and additional components (additives, binders, etc.).
- Optimization of battery and supercapacitor manufacturing processes.
- Integration studies of new materials in cells of different geometries (coin-cell, pouch-cell, cylindrical, flexible, and semi-flexible).
- Development of the engineering of the different cell components.
- Integration with other CIC energiGUNE services and platforms.

HOW?

EQUIPMENT & TECHNIQUES

MATERIAL'S PROCESSING

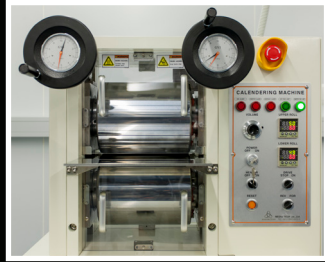
MIXING



COATING



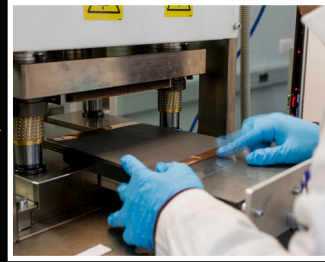
CALENDERING



DRYING



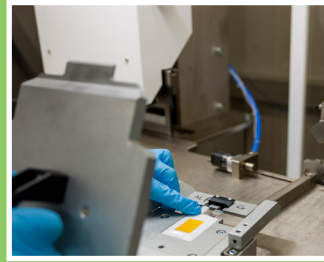
ELECTRODE NOTCHING



ELECTRODE STACKING

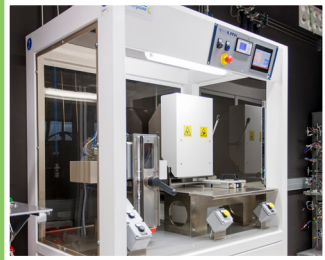


TAB WELDING



CELL ASSEMBLY

FINAL SEALING



DEGASSING



FULL SEALING



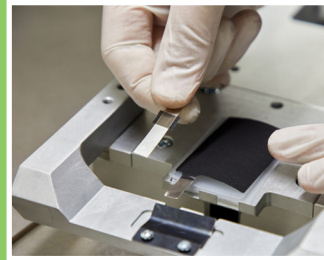
ELECTROLYTE FILLING



3 SIDE SEALING



POUCH FORMING



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Making sustainability real