



SOLID ENERGIES INC

# Battery Cell Engineering & Prototyping Services

[www.solidenergies.com](http://www.solidenergies.com)

## COIN CELL & POUCH CELL PROTOTYPING PROCESS FLOW

### COIN CELL

1 Electrode Punching › 2 Vacuum Drying › 3 Glovebox Stacking › 4 Electrolyte Dosing › 5 Crimping & Formation

### POUCH CELL

1 Die Cutting & Slitting › 2 Stacking & Tab Welding › 3 Pouch Forming & Sealing › 4 Electrolyte Filling › 5 Formation & Degassing

## REPRESENTATIVE CELL ASSEMBLY & TEST FACILITIES



**MBRAUN Gloveboxes**  
(H<sub>2</sub>O/O<sub>2</sub> < 1 ppm)



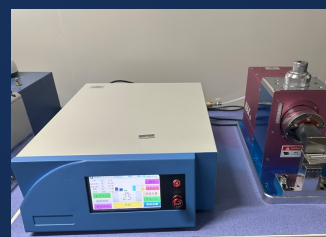
**Pilot-line Cleanroom**  
(Class-1000, ~760 sq ft)



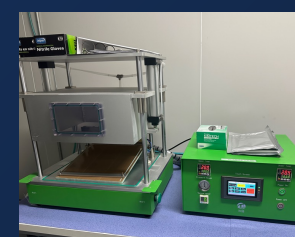
**Pilot-line Dryroom**  
(DP: -60°C, ~180sq ft)



**Electrode Die Cutter**



**Ultrasonic Tab Welder**



**Heat/Vacuum Pouch Sealing**



**Pouch Cell Formation Machine**



**Coin/Pouch Cell Testing Chambers**

## REPRESENTATIVE PROGRAMS & PROJECTS

### California Energy Commission (CEC): EPC-21-039

#### Solid-state Li-ion Battery (SSLiB) Manufacturing

- Pilot-scale SSLiB pouch cell fabrication and test
- Pouch cells demonstrated from ~0.1Ah – 50Ah
- 5kW SSLiB-based energy storage system demonstrated

### DoE ARPA-E: DE-AR0001913

#### Solid-state Li-air Battery Development

- Coin cell confirmed the desired 4-electron Li<sub>2</sub>O process
- Pouch cell demonstrated promising energy density (~760 Wh/kg) and peak power (~1450 W/kg)

### NASA: 80NSSC24PB510

#### Low-temperature Capable Semi-solid Battery

- Coin cell for electrolyte composition screening
- Pouch cell demonstration with high-voltage cathode (LNMO) and high-capacity anode (Li/Si).

**Coin cell to 10s-Ah pouch — assembly, formation, and qualification under one roof in Anaheim, California**

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SOLID MASTER BATTERY

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## COIN CELL & POUCH CELL PROTOTYPING PROCESS FLOW

### Pouch Cell Prototypes

- NCM811/Si  
(or Li anode)
- Small size  
4.5cm x 5.8cm  
(1,5,30,50 layers)
- Middle size  
8.8cm x 11cm  
(1,5,30,50 layers)
- Large size  
15cm x 20cm  
(1,5,30,50 layers)

### 3.7V/52Ah Pouch Cell

Demonstrated (with  
large size/50 layers)



### Cell/Unit/Battery Pack Prototypes



**Trial order shipped to AIRBUS**



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