Fraunhofer ISIT

# Fast Battery Cell Development

## Application-specific cell design

Example of cells developed for medical devices, wearables and electromobility.

Two decades of accumulate research and development and battery cell design activities have enhance our capabilities in delivering a fast response to customer inquiry for cells prototypes and small batch production. Directly connected to your applications, our specialists are experts in delivering the precision match between the requirements of devices and materials, formulations, cell design and functionalities enhancing the customer experience for your applications.

Our offering ranges from robust battery cells in high- power, high-pressure, high- temperature versions to flexible variants in different form factors as well as smart cells for small series.

Upon request we also offer full support for handling over your customized battery cells into production with our network of qualified partners.


Typical batch production: 1 to 100 pieces

### Fast battery cell development by rapid prototyping

- Time for development: 3* to 8 weeks
- Pouch cells in multiple form factors
- Cell adaptation to customer experience

* after specifications acceptance and purchase order

### Example of realized prototypes

| **High-Power Cell** |
|---|
| 18C discharge/charge rate |
| 160 Wh/kg |
| Graphite technology |

| **High Temperature Cell** |
|---|
| Up to 150°C operation temperature |
| Autoclavable |
| High intrinsic safety |

| **Smart-Cell** |
|---|
| Sensor integration in cells |
| Safety monitoring |
| Ageing prediction |

| **Ultra-High-Power Cell** |
|---|
| 60C discharge/charge rate |
| 190 Wh/kg |
| LTO technology |

| **High Pressure Cell** |
|---|
| 600 bar pressure resistant |
| Flexible geometry |
| Good low temperature performance |

| **Cell Test** |
|---|
| >400 measurement channels |
| Cycle stability, C-Rate capability |
| CV, HPLC, Impedance |

| **Si-High-Energy Cell** |
|---|
| 100% Si Anode |
| >300 Wh/kg |

| **Flexible Cell** |
|---|
| Resistant to alternating bending |
| High intrinsic safety |

| **Module Test** |
|---|
| 5 Channels |
| Up to 60 V, 150 A |

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# Electrochemical Energy Storage Systems for demanding Applications

**Fab-SH | Customized batteries made in Northern Germany**

## What Fab-SH can do for you @Fraunhofer ISIT

### Accelerate battery cell development

- Application-specific cell design
- Optimization of cells according to customer experience
- Proof of concept of new cell designs and form factors
- Rapid prototyping of cells and small batch production

### Efficient use of resource with battery analytic

- Simulation-based design of system and cooling systems
- Customized systems for new applications
- Prioritization of cell properties
- Qualification from cells to module

### Innovative manufacturing technology

- Development of new coating process technologies
- Characterization of new materials and components
- Development of customer-specific recipes for electrodes
- Support for process adoption in production


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**Applied research center for battery technologies of the Fraunhofer ISIT**