

BATTERY ASSEMBLY AND CHARACTERIZATION

COIN CELL ASSEMBLY

Disc Cutters:

- MSK-T-07 Compact Precision Disc Cutter (MTI) with 12, 13, 14, 15, 16, 17, 18, 19, 20, 24 mm diameter
- ECC-LiPunch Lithium disc cutter (EI-cell) 14, 17, 18 mm

CR2016 and CR2032 coin cell cases (MTI & Hohsen)

Crimpers

- MSK-160E Digital Pressure Controlled Electric Crimper (MTI) in Ar filled glove box
- MSK-110 Hydraulic crimper (MTI) in ambient conditions

POUCH CELL ASSEMBLY

Cutters:

- HSOS-03 Single Blade Thomson punch cutter (Hohsen) with 2 geometries
 - Small: A 18 × 23 mm², S 19 × 24 mm², C 17 × 22 mm²
 - Big: A 40 × 74 mm², S 41 × 76 mm², C 39 × 72 mm²

Sealers:

- MSK-115-III Vacuum Sealer in Ar filled glove box (MTI)
- PSS96 Star Industrial Heat Sealer in ambient conditions (PackSealer)

3-ELECTRODE CELLS

- 8 × ECC-Combi (EI-cell)
 - 2 × heat resistance set (up to 150 °C)

ELECTROCHEMICAL CHARACTERIZATION

Cyclers

- 2 × 8 channels 10 μA – 100 mA (BCS-810, Biologic)
- 6 × 8 channels 100 μm – 1 A (BCS-805, Biologic)
- 1 × 8 channels 10 mA (Neware)

Potentiostats

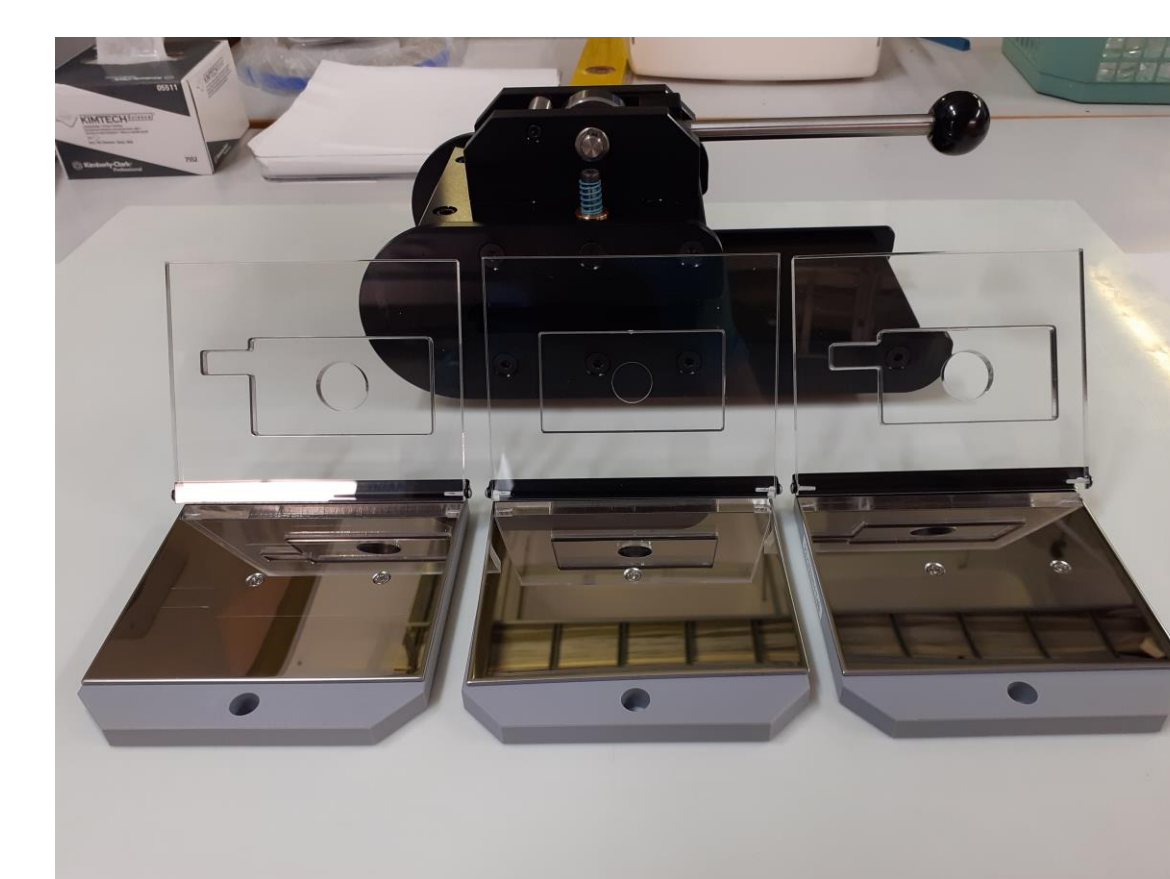
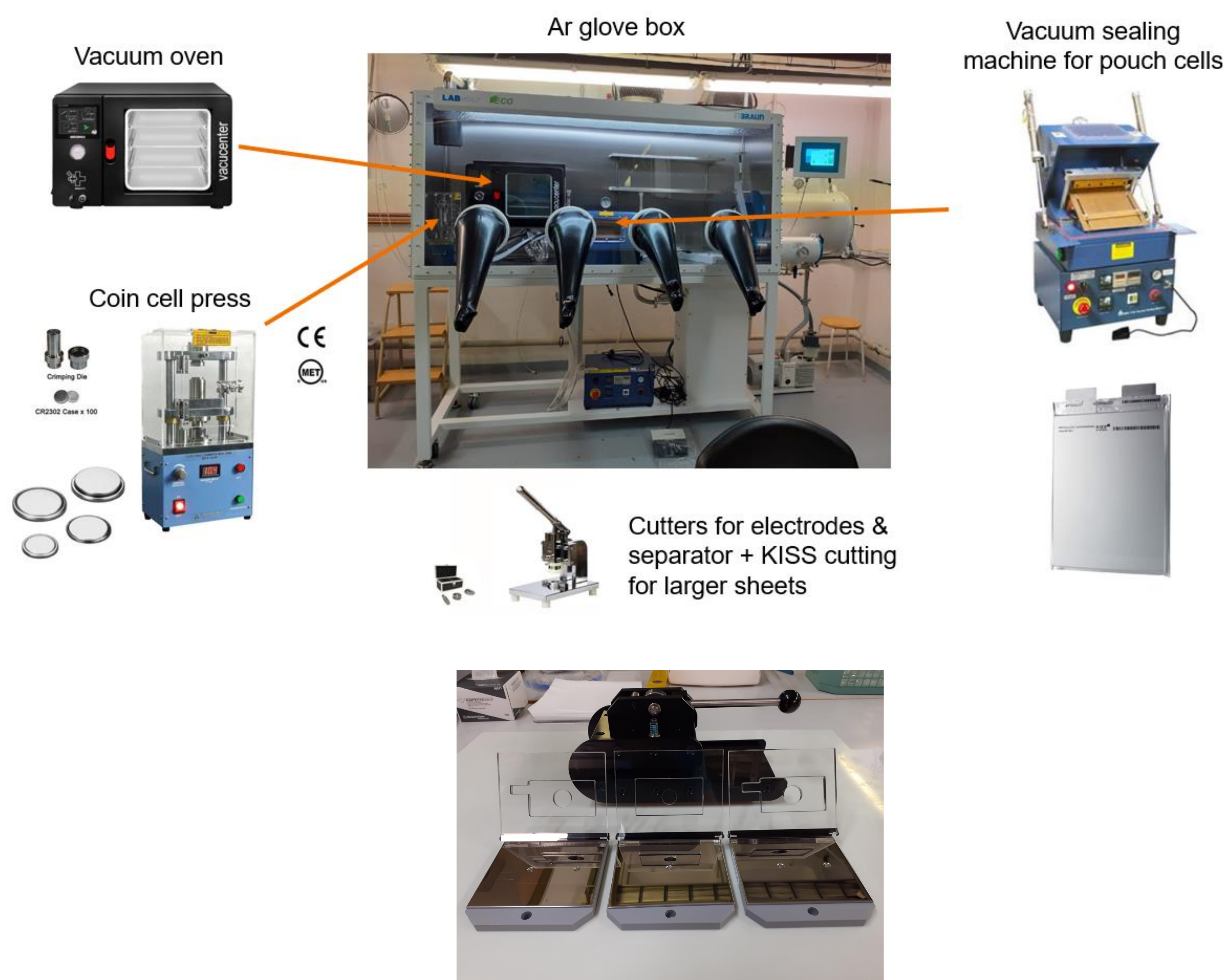
- 2 × AUTOLAB PGSTAT128N (10 nA – 1 A) with FRA32M module (Metrohm)
- 1 × Vertex (10 nA – 1 A) (Ivium)

Thermal control

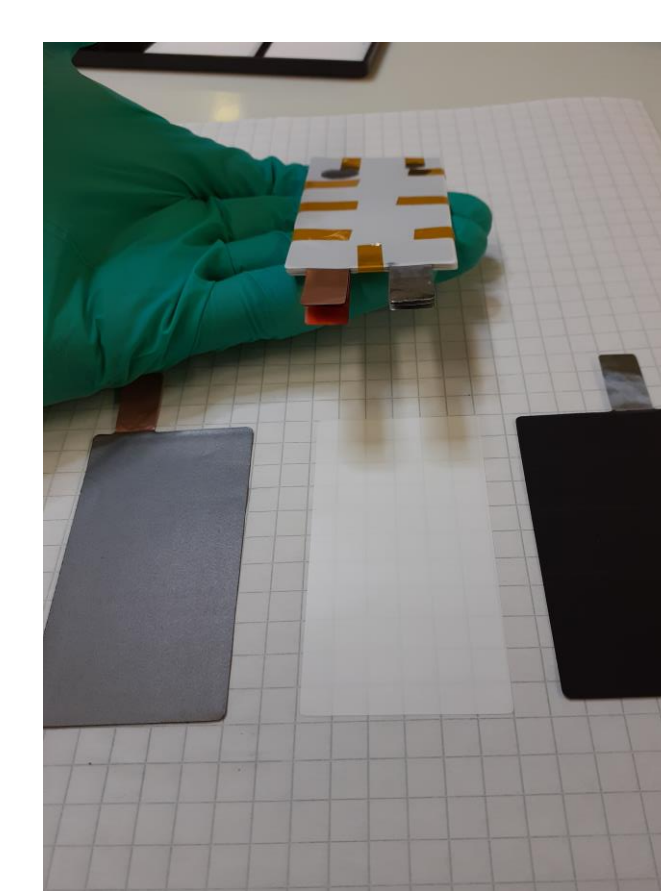
- Thermal chamber with 32 coin cell holders (15-60 °C) (Neware)
- High temperature holders for 8 coin cells up to 120 °C (self-made)

OTHER CHARACTERIZATION METHODS

- Optical microscopy
- SEM
- Profilometry
- 3D microscopy
- FTIR spectroscopy
- BET/BJH surface area/pore size distribution
- TEM
- + wide variety of other tools available at VTT (please ask if you need special characterization methods)



Pouch cell layers and a ready cell



Cycler



High-temperature holder

