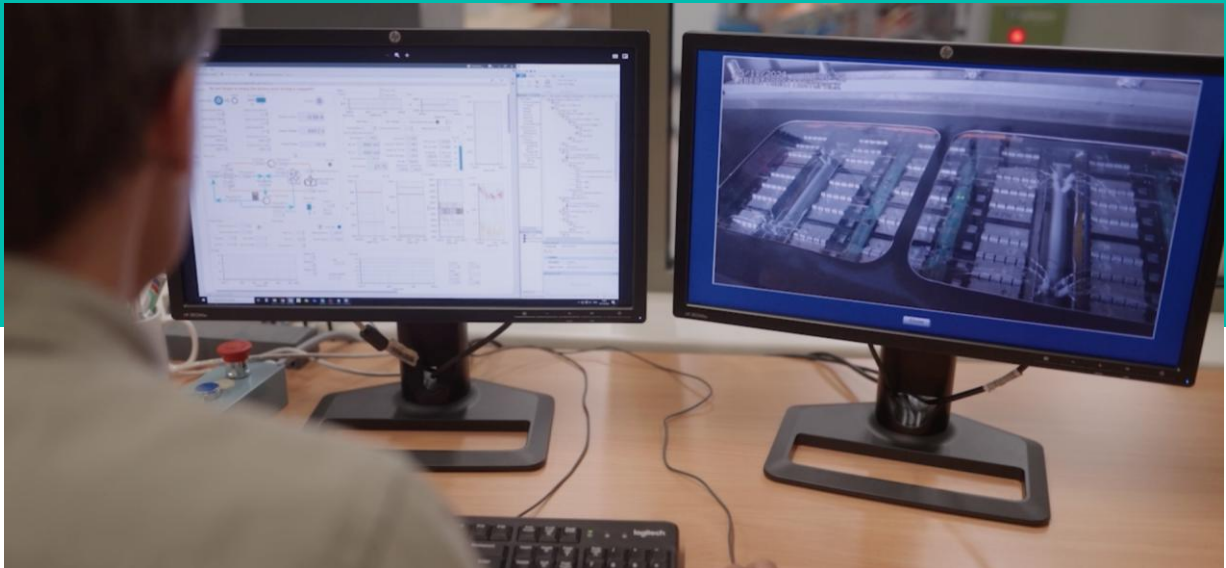


Extensive battery testing for all kinds of applications

BATTERY TESTING



TECHNICAL SPECIFICATIONS

BATTERY TESTING

- **Battery testing from -6 to 6V**

- 1x Arbin RBT41042H (4 channels)

Max. current: 300 A/channel (up to 1200 A in parallel)

Operating voltage range: -6 to 6V (forced discharge)

Temperature sensors on each channel

Bi-directional

- **Battery testing up to 5-10V**

- 2x PEC ACT0550 (160 channels)
- 2x PEC SBT0550 (48 channels)
- 1x PEC CT0550 (40 channels)
- 1x Neware BTS 10V6A (104 channels)
- 1x Neware BTS 5V10mA (6 channels)

Max. current: 50 A/channel (up to 1000 A in parallel)

Operating voltage range: 5-10V

Temperature sensors on each channel



- **Battery testing high voltage**

- 1x PEC SBT8050 (12 channels)
- 1x DIGATRON (1 channel)

Operating voltage range: 0 - 80 V (PEC) or 0 - 1000 V (DIGATRON)

Max. current: 50 A/channel (up to 600 A in parallel)

Max. power: 16 kW (DIGATRON) – 27kW over 9 channels (PEC)

Multiple temperature sensors per channel

- **Battery module testing**

- 1x ITECH battery emulator (2 channels)

Operating voltage range: 0 - 80 V

Max. current: 450 A/channel (up to 900 A in parallel)

Max. power: 30kW

Multiple temperature sensors per channel

CAN communication with BMS

Bi-directional

- **Battery pack tester & simulator DC540**

- 4 channels
- 0V to 1500VDC
- 270 A per channel (1080 A in parallel)
- 135kW per channel (540 kW in parallel)
- CAN communication with BMS
- Bi-directional

- **Battery high frequency testing**

- Metrohm Autolab PGSTAT302N (1 channel)
- Bio-Logic VSP (5 channels)
- Bio-Logic BCS (16 channels)
- Bio-Logic 2X MPG (16 channels)

Operating voltage range: 0 - 5 V

Max. current: 5 A/channel (up to 100 A with booster)

Frequency: 20 kHz - 10 mHz (2x MPG) or 1 MHz - 1 mHz (VSP)

CLIMATE CONTROL TESTING

Available equipment:

- Climate chamber for battery pack testing (5600 L – with automated fire extinguishing system, humidity control and accurate computer control)
- Several climate chambers with humidity control for battery module testing (up to 600L)

Specifications:

- Temperature range: -40°C to 130°C
- Relative Humidity (10% to 98%) – climate rooms & climate chambers
- CW climate room: max. 2 x 600kg battery packs
- Programmable Seasonal temperature profile



VARIOUS INFRASTRUCTURE

- **Battery heat distribution measurement**

- 1 FLIR A655Sc IR camera
- 1 Fluke Ti25 IR camera

- **Battery post mortem analysis fabrication**

- Panalytical In-situ XRD
- Jacomex Glove Box

Controlled environment below 1 ppm H₂O and O₂

AR controlled environment in Glove Box

Mo and Cu radiation in-situ XRD

- **Battery prototype**

- Dry Room (45m²) -60°C dewpoint
- Battery Electrode Coater (Doctor Blading)
- Hydraulic Cell Crimper
- Vacuum Mixer
- Planetary Ball Mill
- Electrode Disc Cutter
- Vacuum Oven
- Pouch cell sealer
- Hot Rolling Press
- Viscometer
- Pouch sealer
- Heatable Die & Hydraulic Press

- **dSPACE MicroLabBox**

- **Compact lab prototyping unit**

- **Typhoon HIL Battery Real Testing**

- BNC for Cinergia AIO
- DSUB for Cinergia AIO and DIO
- DSUB for CAN BUS
- DSUB for dSPACE DS4003 (NI PXIe-7856R) DIO (3 DIO DSUB Connectors - 16 x DI and 16 x DO each)
- DSUB for dSPACE DS5101 PWM (12 PWM inputs, and 12 PWM outputs)
- BNC for dSpace A/D module DS2002/2003 (16 Channels)
- BNC for spare AI (NI PXIe-7856R)
- DSUB for spare AO (NI PXIe-7856R, PEC SBT8050)

