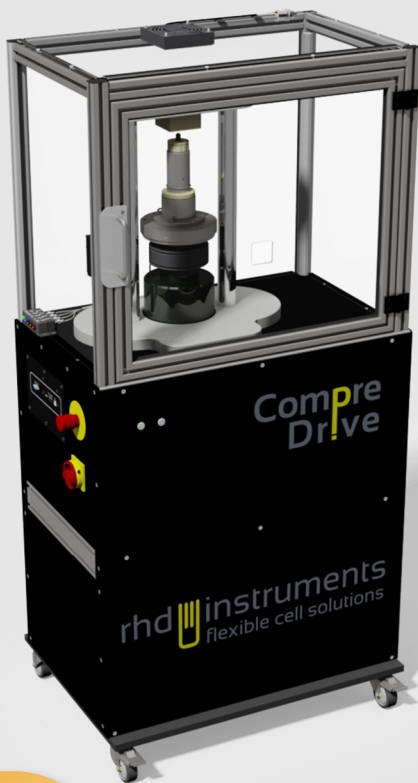
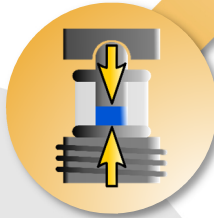


Force
Temperature
Precision

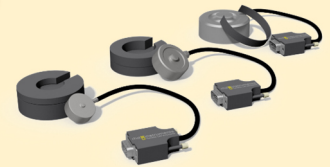
Compre Drive



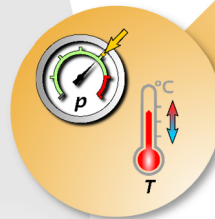
High-pressure electrochemistry



- Uniaxial force application
- Variable forces up to 75 kN
- Force sensors with different ranges available
- Compatible with various measuring cells



Precise conditions, hot and cold



- Active force & temperature control with high accuracy
- Heating and cooling between $-30\text{ }^{\circ}\text{C}$ up to $+250\text{ }^{\circ}\text{C}$
- Significantly enhanced reproducibility



Ideal for sensitive samples

- Specialized cell design for multiple applications
- Air-tight, glovebox compatible cell setup
- Variable cell materials and sizes

Fully automated measurements



- User-friendly & intuitive interface
- Automated measurements and full manual control
- Hard- and software-based synchronization with analyzers

Supported by:



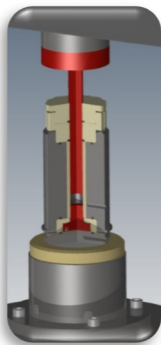
Federal Ministry
for Economic Affairs
and Energy



on the basis of a decision
by the German Bundestag

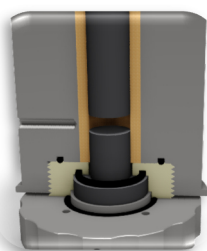
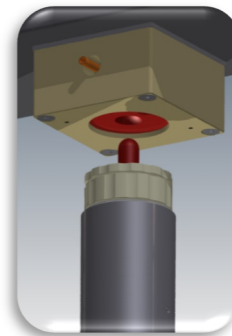


In-situ high-pressure electrochemistry



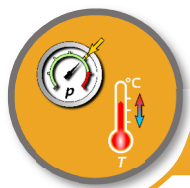
Well-defined force application

- Uniaxial force application
- Highly stressed parts made from hard-metal
- Pressures up to 1.7 GPa (Ø 6 mm, 50 kN)
- Force application via high-precision servo-motor instead of hydraulics

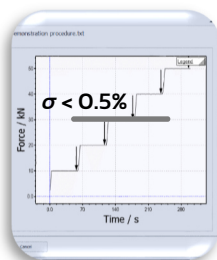
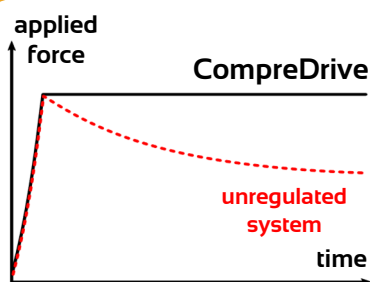


Ideal for electrochemical *in-situ* characterization

- Plate-plate geometry
- Connectable with all potentiostats
- Sandwich-type material stacks possible
- Electrical contact via hard metal pistons
- Chemically inert & electrically insulated inner sleeve



Precisely controlled pressure and temperature conditions

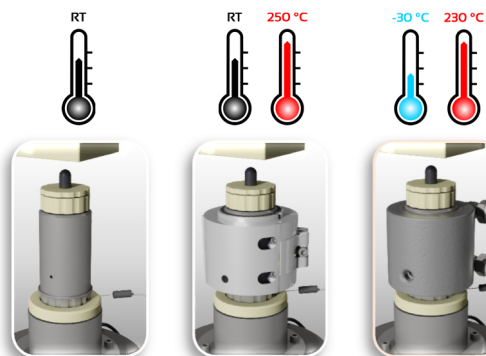
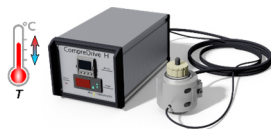


Active force regulation

- Applied force is constantly measured and adjusted as long as required
- Constant within ± 0.1 kN
- Force setpoints can be applied manually, via procedure or software interface

Accurate temperature control

- Possible setups: passive/ electrical heating/ fluid cooling & heating^(a)
- Enables temperature-dependent analyses from -30 °C^(a) to +250 °C^(b) (± 0.1 °C)
- High quality Pt-100 temperature sensor



CompreDrive

CompreDrive H

CompreDrive HC

^(a)CompreDrive HC Basic Package needed
^(b)Depending on sleeve material

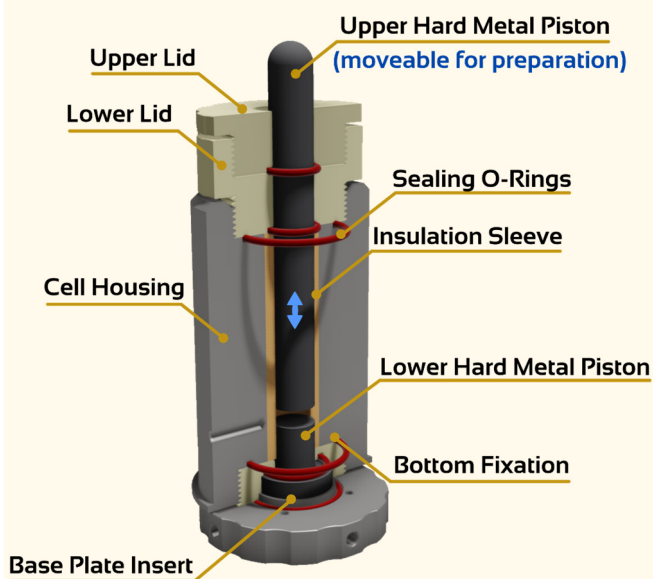


The CompreCell – Handling of sensitive samples

Easy to use, air-tight setup

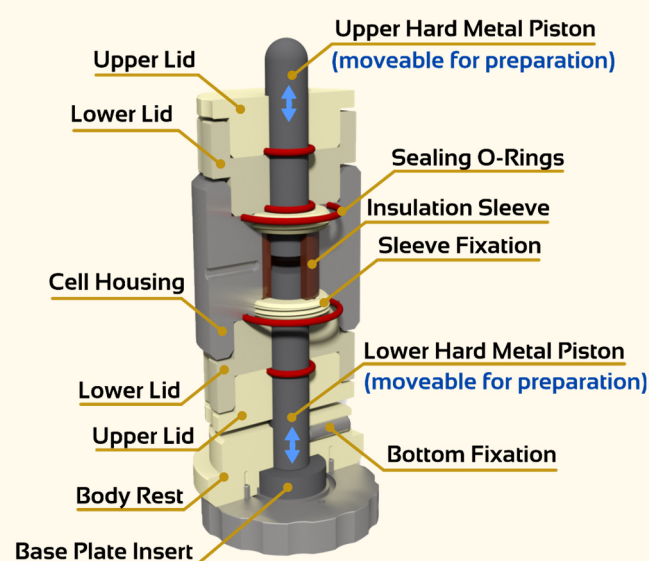
- Handling of air-/moisture-sensitive samples
- Easy, glovebox compatible assembly/disassembly
- Exchangeable insulation sleeves available (AlOx-ceramic /PEEK/PEI)
- Max. pressure: 1.7 GPa (Ø 6 mm)/663 MPa (Ø 12 mm)
- Sample Height: ≤ 10 mm
- Helium-leakage rate <math>< 10^{-7}</math> mbar l s⁻¹ (at 250 °C)

Standard Version



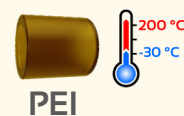
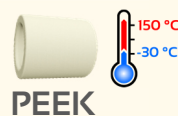
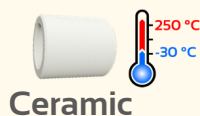
- ✓ Solid Electrolyte Investigations (Powder/Pellet)
- ✓ Solid-State-Battery Testing (Half/Full Cells)

Double Piston (DP) Version



- ✓ Solid Electrolyte Investigations (Powder/Pellet)
- ✓ Solid-State-Battery Testing (Half/Full Cells)
- ✓ Ideal for Layer-By-Layer Assembly
- ✓ 3-Electrode Experiments (only at RT)

Insulation Sleeves: (exchangeable)

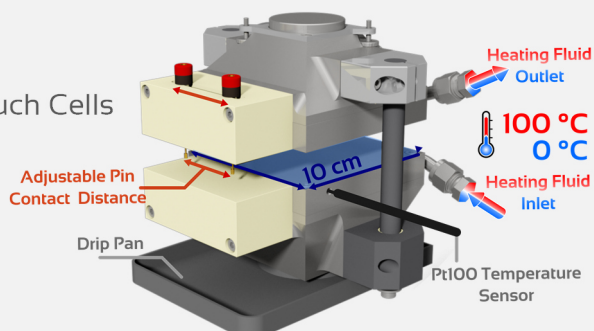


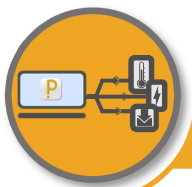
CompreCell Pouch 10 S (HC)^(c)

Ideal for Pouchcells

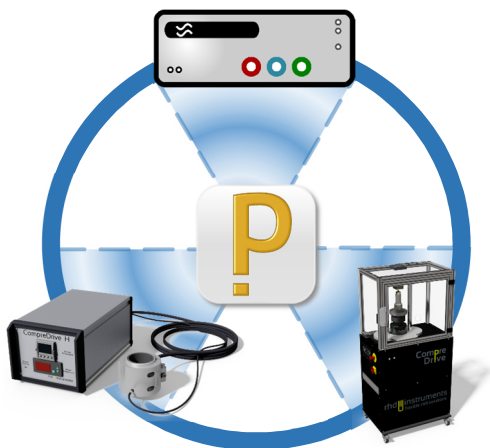
- Regulated force & temperature conditions for Pouch Cells
- Active Area of Pouch Cells 10 cm x 10 cm
- Max. Force: 75 kN
- Max. sample height: 20 mm
- T-Range: 0 °C to +100 °C^(c)

^(c)CompreDrive HC Basic Package needed





CompreDriveControl – Automate your measurements

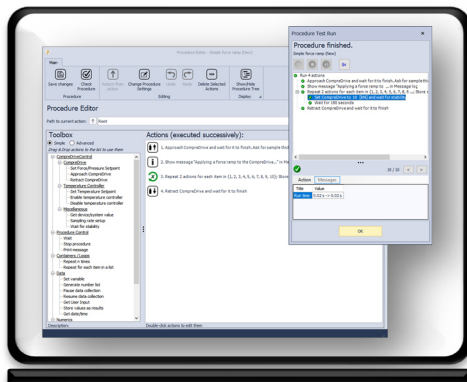
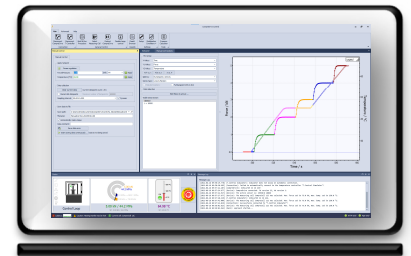


Many devices – connected by one program

- Interconnection of thermocontroller, analyzer software and CompreDrive
- Synchronisation with major analyzer brands, like BioLogic, Novocontrol, Zahner, Metrohm Autolab
- Automation of measurements via custom procedures

Comprehensive control and software interface

- Full manual control over force and temperature setpoints
- Extensive data recording and export options
- Ability to implement and record additional devices via plugins
- Set force or pressure using built-in cell definitions



Automated measurement routines

- Procedures execute a free set of commands
- Commands control devices or data
- Powerful variable system for data propagation
- Synchronisation with devices via hard- or software triggers

External software interface

- Access CompreDriveControl functions via requests from external software
- HTTP- or Named Pipe-based channels
- Allows direct integration into i.e. analyzer software (if supported)

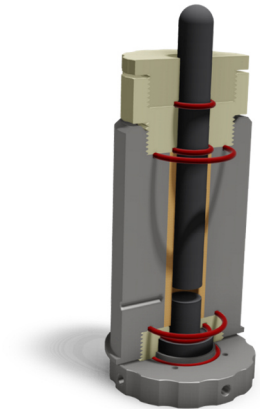
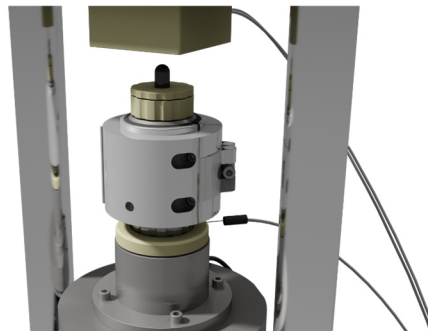
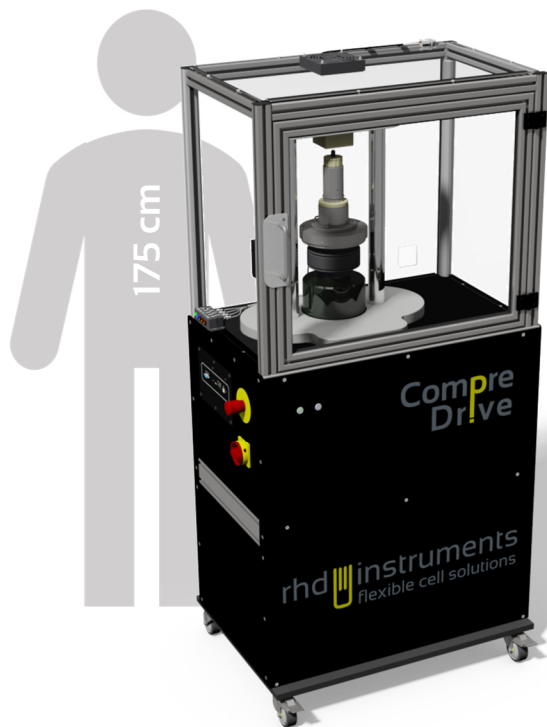
System requirements (recommended)

Operating system:	Windows 10
RAM:	4 GB
Ports:	USB 2.0 (for CompreDrive)
Recommended screen:	24", Full-HD or larger (high-DPI supported)

Specifications:

Maximum force:	75 kN
Minimum force:	0.15% of sensor full scale / min. 30 N
Force precision:	±0.1 kN
Maximum pressure:	1.7 GPa (Ø 6 mm)/663 MPa (Ø 12 mm)
Temperature compliance range:	-40 °C ↔ +250 °C ^(d)
Temperature accuracy:	±0.1 °C
Materials in sample contact:	Hard-metal, AlOx-ceramic/PEEK/PEI
Sample diameter/area:	6 or 12 mm ^(e) / 10 x 10 cm ² ^(f)
Drive type:	Servo-driven lifting spindle, <10 nm per step
Power supply:	1-phase AC 110-230 V, 50/60 Hz
Maximum total cell height:	149 mm
Dimensions:	167 x 81 x 58 cm
Total weight:	180 kg

^(d)depending on sleeve material
^(e)CompreCell
^(f)CompreCell Pouch 10S



For questions, quotes and orders, please contact us:



rhd instruments GmbH & Co. KG
 Otto-Hesse-Strasse 19 / T3
 64293 Darmstadt, Germany

info@rhd-instruments.de
 www.rhd-instruments.de
 +49 6151 870 7187



07/2022