

LEANCAT

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LEANCAT
FUEL CELL TECHNOLOGY

Leancat at a glance

- Czech company established in 2016
- Resulted from a close cooperation of the Department of Surface and Plasma Physics, **Charles University** in Prague and a Czech technology group **JABLOTRON**



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JABLOTRON
GROUP

Our mission

**We Make Hydrogen
Technology Reality**



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Test Stations

Robust, reliable & customizable

- PEM Fuel Cells
- SOFC
- Contamination Testing
- 100 W — 50 kW**

We offer customers test stations for PEM fuel cells and electrolysers and SOFC/SOE. Standard configurations cover power ranges from 100 W to 50 kW and we offer a variety of customization options based on the requests of our customers.



 <p>Open-Cathode Stack Tester OBT Testing of open-cathode (air-cooled) stacks</p>	 <p>Fuel Cell Test Station STS-10 Testing of short stacks or large-area single cells</p>	 <p>Fuel Cell Test Station PTS-10 Testing of short stacks or large-area single cells</p>	 <p>Fuel Cell Test Station PTS-100 Testing of short or full stacks</p>
 <p>Fuel Cell Test Station PBT Single-cell testing of fuel cells up to 50 cm²</p>	 <p>Fuel Cell Test Station PTS-50 Testing of short stacks or large-area single cells</p>	 <p>Fuel Cell Test Station PTS-500 Testing of short or full stacks</p>	 <p>Fuel Cell Poisoning Module FCPM Testing of contamination effects</p>

Testing Hardware

Versatile & Easy-to-use



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The development of electrolysers and fuel cells requires researchers to work with many degrees of freedom, whether in terms of materials used or techniques applied. To support these efforts, we offer a portfolio of tests cells of various sizes and temperature ratings. All Leancat AirCells can be quickly and easily assembled / disassembled and offer reproducibility of the compression force thanks to the air-compression mechanism.



Air-pressed Test Cell AirCell

Compression hardware for single-cell testing (5 - 50 cm²)



Air-pressed Test Cell AirCell-HT

Compression hardware for single-cell testing (5 cm²)

Fuel Cells - From Stacks to Applications

H2CleanGen – hydrogen powered generator of electric power



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Leancat H₂CleanGen can handle backup power, off-grid systems, or grid balancing. It can work on its own or be integrated with battery systems in more complex units. Even the waste heat can be utilized in domestic water or house heating.



Key features

- Generator of electric power based on PEM fuel cells
- Available in configurations from 3 to 10 kW
- Waste heat can be utilized due to liquid-cooled stack technology
- Possible to couple with battery storage to broaden range of applications

Water Electrolysers

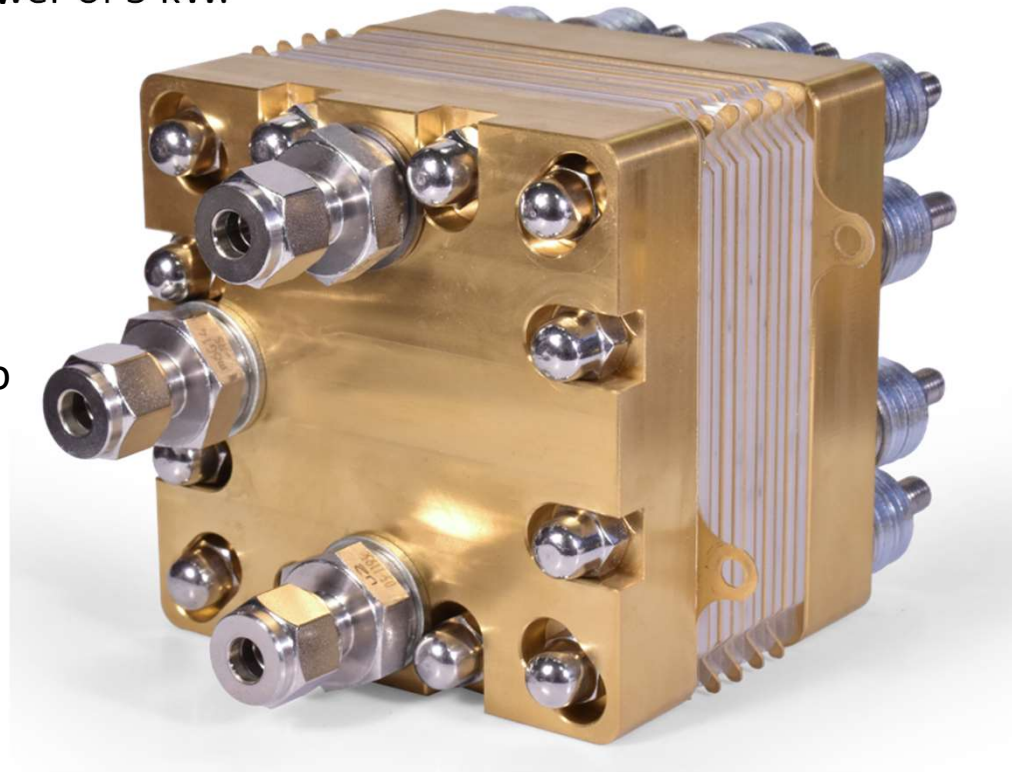
Green Hydrogen On Demand

The beating heart of each water electrolysis unit is a stack. We offer stacks based on the established PEM technology with proven record of high flexibility and durability. Using 25 cm² cells as a basis, these stacks can be scaled up reaching maximum power of 5 kW.

PEM Water Electrolyser Stack LCWE-25

Key features

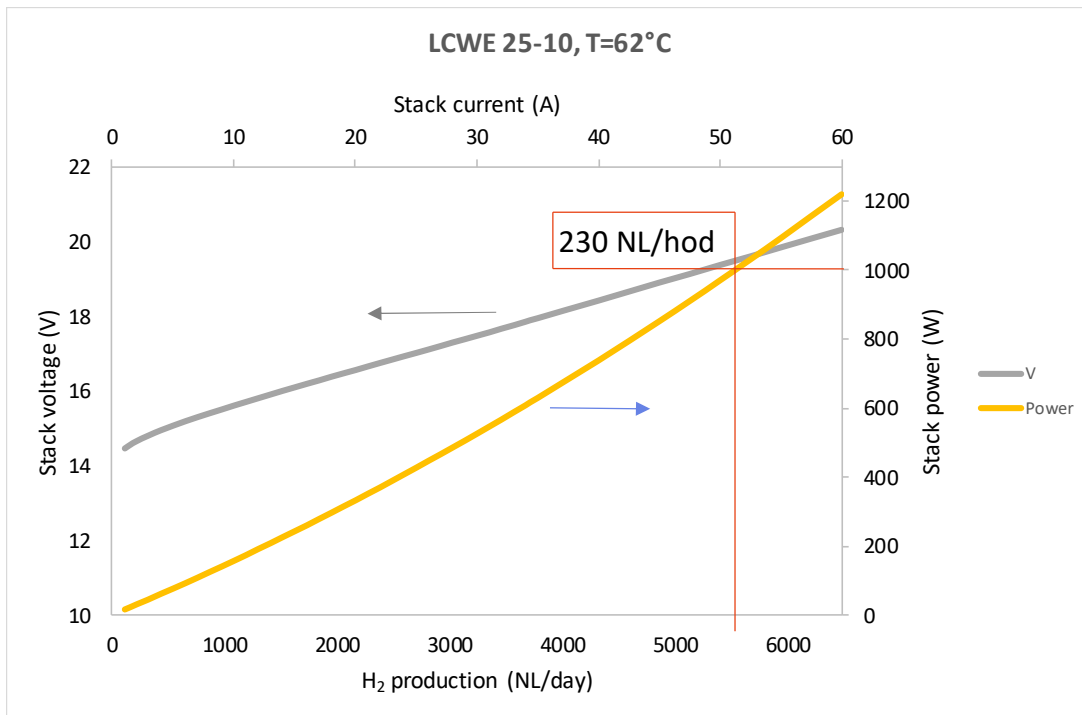
- Advanced PEM water electrolysis stack
- Produces hydrogen at high pressure up to 20 Bar
- Designed for integration in H₂ systems
- Power range up to 5 kW





Hydrogen Energy Storage

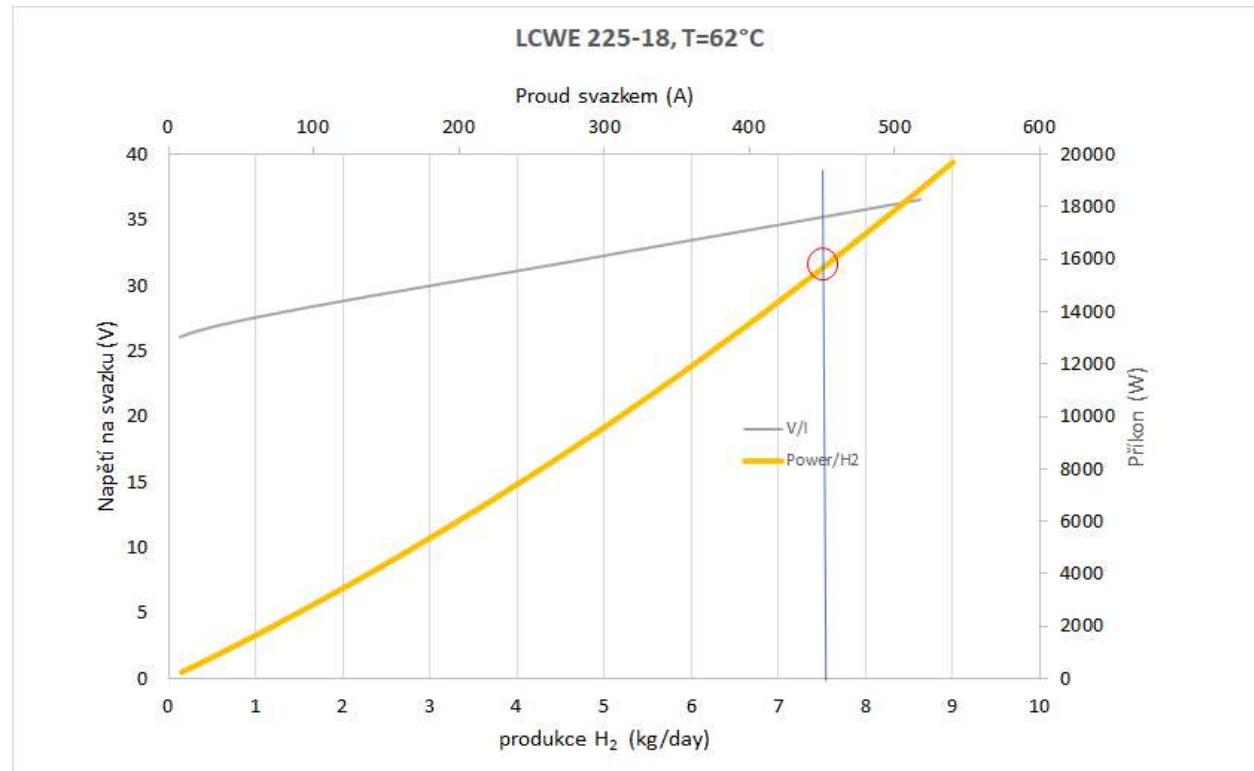
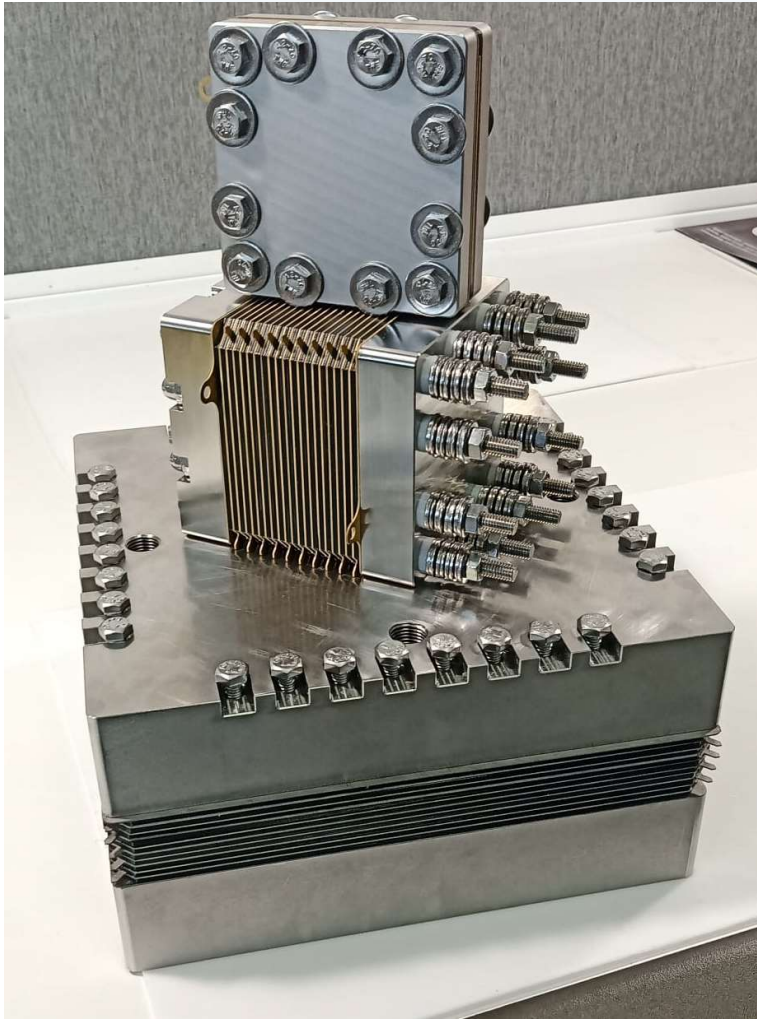
Electrolyser 1 kW – 220 NL H₂/h @ 20 bar



Type	LCWE 25-10
Nominal load	1 kW
Current	15–60 ADC
H ₂ maximal production	270 NL/h
H ₂ purity Degree	99.99 %
Operating pressure H ₂	0-25 Bar
Operating pressure O ₂	unpressurised
Water consumption	0.05–0.3 l/h
Cooling water flow rate	3–60 l/h
Operating temperature	30–70 °C
H ₂ O purity	DIN ISO 3696 type 1
Connection power	M6
H ₂ O connection	G 1/4"
H ₂ connection	G 1/4"
CVM connectors	Faston 2,8 mm
Dimensions L x W x H	85 x 85 x 150 mm
Weight	2,5 kg

Water Electrolysers

Green Hydrogen On Demand



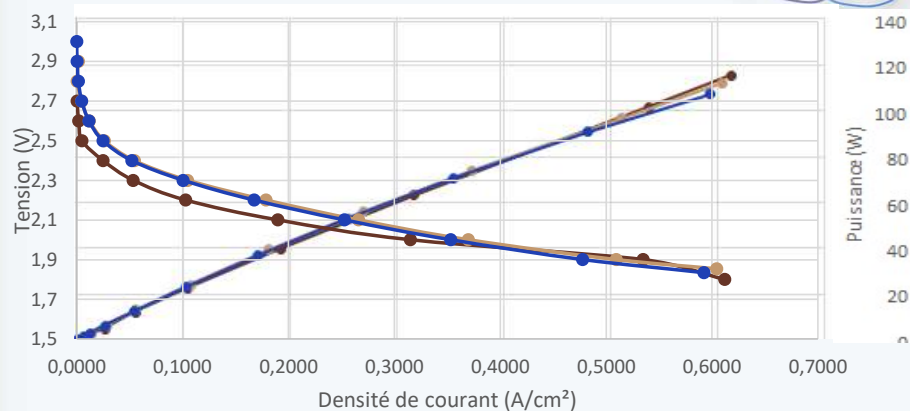


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Fuel Cell Science Kit LCFC-kit

Key features

- Educational kit for PEM fuel cells
- PEM fuel cell stack with open-cathode architecture
- Ventilator for cooling and air supply
- Control of ventilator rotation speed
- Control module with touch screen
- Electronic DC load controlled by PC

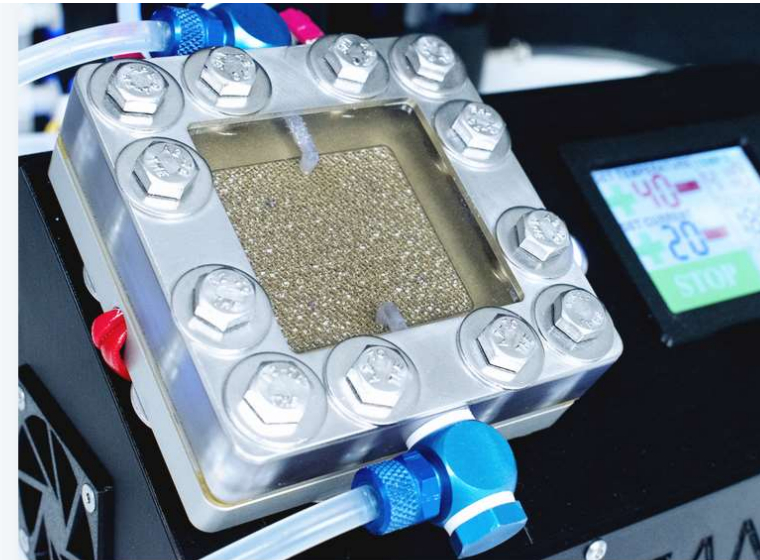




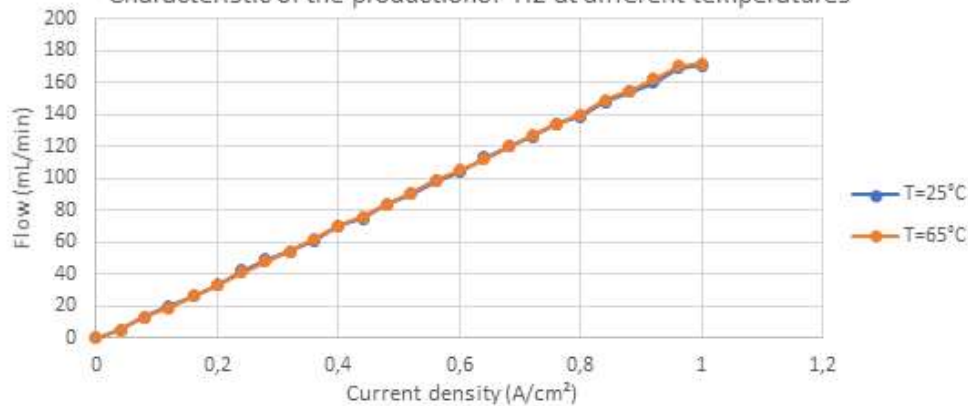
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Water Electrolyser Science Kit LCWE-kit

Generation of green hydrogen in vivo. That's Leancat's science kit uses the same industrial design and components as our full-featured electrolyzers, but it is specifically designed for education. With continuous regulation of power and transparent end plate, it is possible to directly observe gas generation and characterize the behavior of the system.



Characteristic of the production of H₂ at different temperatures



Hydrogen Generator LCHG-03-DUO

Applications

Molecular hydrogen has strong antioxidant, anti-inflammatory and antiapoptotic effects. Moreover, it can suppress dangerous cytokine storms and prevent lung damage caused by virus infections.

Key features

- Water electrolyser for the inhalation of H₂ and saturation water or therapeutic solutions with hydrogen
- Hydrogen production output to nasal glasses or cannula
- Closed glass bottle made of borosilicate glass for the saturation of drinking water with hydrogen
- Integrated timer and water-level monitoring in the tank
- Safety features prevent overpressure and blockage of the outlet
- Visual indicator of required maintenance



LEANCAT expertise

- Benefits from **fuel cell research knowledge**
- Experience with **applying fuel cells to real world applications**

Distributors



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MINISTERSTVO
PRŮMYSLU A OBCHODU

Projekt „Pokročilé materiály palivových článků pro
udržitelnou energetiku“ 2019-2021

T A Program **Théta**

Č R

Projekt „Bipolární desky palivového článku“
2019 – 2021

T A Program **Théta**

Č R

Pokročilý reverzibilní systém pro výrobu vodíku a elektrické
energie na bázi vysokoteplotní cely využívající pevných oxidů
2022 - 2025