



Air-pressed Test Cell AirCell

Key features

Suitable for low-temperature
PEM fuel cells or electrolyzers

Compression system uses
pressurized gas

Fully controlled tightening
force

Uniform force distribution

Compression
hardware for
single-cell testing

LEANCAT



Specifications

Active area:

4.8 - 50 cm²

Monopolar plate material:

High-density graphite or titanium

Current-collector material:

Gold-coated copper

Max. operating pressure:

6 bar

Fuel Compatibility:

H₂, methanol, ethanol

Base and upper plate material:

Anodized aluminium

Max. operating temperature:

80 °C

Cell heating:

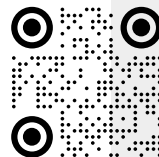
2 cartridge heaters

Temperature measurement:

2 thermocouples included

Applications

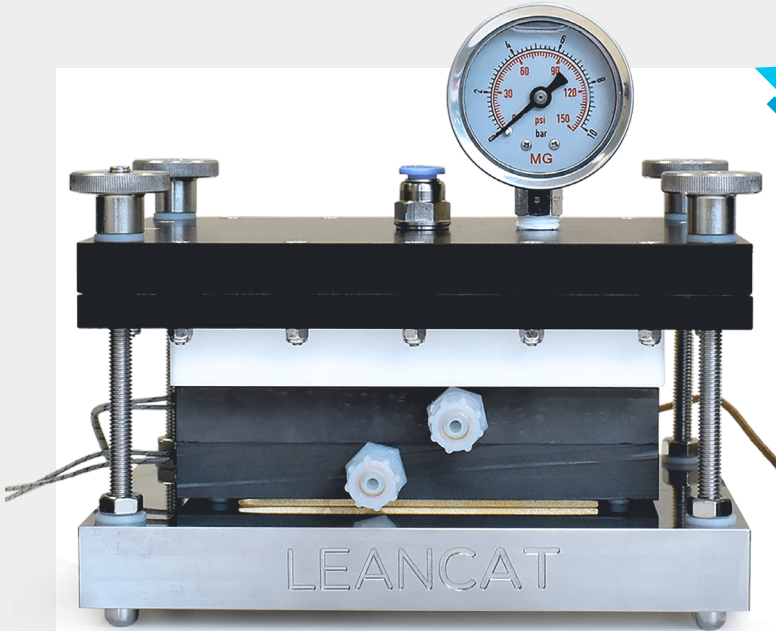
Research and development of fuel cells and electrolyzers requires many experiments to be carried out under various conditions. Leancat AirCells offer repeatable and well-controlled conditions as well as high durability thanks to its robust and clean design.



LEANCAT s.r.o.

Web: lean-cat.com
E-mail: info@lean-cat.com

LEANCAT



High-temperature Test Cell AirCell-HT

Key features

Suitable for high-temperature PEM fuel cells or electrolyzers

Compression system uses pressurized gas

Fully controlled tightening force

Uniform force distribution

Compression hardware for single-cell testing

LEANCAT



Specifications

Active area:

4.8 cm²

Monopolar plate material:

High-density graphite or titanium

Current-collector material:

Gold-coated copper

Max. operating pressure:

6 bar

Fuel Compatibility:

H₂, methanol, ethanol

Base and upper plate material:

Stainless steel

Max. operating temperature:

200 °C

Cell heating:

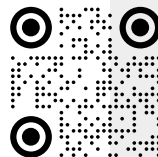
2 cartridge heaters

Temperature measurement:

2 thermocouples included

Applications

Research and development of fuel cells and electrolyzers requires many experiments to be carried out under various conditions. Leancat AirCells offer repeatable and well-controlled conditions as well as high durability thanks to its robust and clean design.



LEANCAT s.r.o.

Web: lean-cat.com
E-mail: info@lean-cat.com

LEANCAT



Fuel Cell Poisoning Module FCPM

Key features

Designed for the testing of catalyst poisoning in PEM fuel cells

Enables reproducible and accurate investigations from very low concentration of contaminants

Connects to existing testing equipment

Configurations with multiple gas contaminant streams or a liquid contaminant stream

Testing of contamination effects

LEANCAT



Specifications

Contaminant concentration:

1 ppm - 10 ppt

Temperature range:

10 - 95 °C

Liquid contaminant stream:

optional

Minimum flow rate of carrier gas:

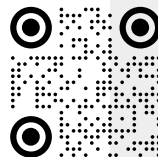
100 Nml/min

Number of gas contaminant streams:

1 - 3

Applications

The effect of contaminants on the performance of fuel cells is an important aspect for real-life operation of fuel cells. Leancat contamination module makes use of our advanced mixing technology and it is capable of achieving concentrations down to 1 ppm for flow rates 100 Nml/min and higher. The module can be connected to and controlled by Leancat test bench automation system or customer's own existing test bench via an OPC UA server.



LEANCAT s.r.o.

Web: lean-cat.com
E-mail: info@lean-cat.com

LEANCAT



Open-Cathode Stack Tester OBT

Key features

Configurations for testing stacks with up to 60 cells

Current range up to 300 A

Power supply and control of cooling fans

Robust system based on industrial PLC with data logging into SQL database

Safety features for fully automated operation

CE certificate of conformity

Testing of open-cathode (air-cooled) stacks

LEANCAT



Specifications

Maximum power:

1.4 / 2.1 / 3.2 kW

Maximum voltage:

60 V

Interface for cooling fans:

up to 6

N₂ purge:

automatic

Maximum current:

120 / 180 / 300 A

Thermocouples:

up to 6

Inlet gas interface:

hydrogen, nitrogen

Dead-end mode:

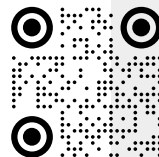
Interface for recirc. pump

Cell Voltage Monitoring:

up to 60 channels

Applications

Open-cathode fuel cells are very convenient for various applications due to their simple design and low requirements for balance-of-plant components. Well-defined and repeatable conditions of Leancat OBT enable thorough investigation of open-cathode fuel cells also thanks to extensive scripting possibilities.



LEANCAT s.r.o.

Web: lean-cat.com
E-mail: info@lean-cat.com

LEANCAT



Fuel Cell Test Station PBT

Key features

Suitable for low-temperature PEM fuel cells

Available configurations for testing single cells with active area up to 25 cm² or 50 cm²

Current range up to 120 A
Optional potentiostat with integrated EIS

Safety features for fully automated operation

CE certificate of conformity

Single-cell testing
of fuel cells
up to 50 cm²

LEANCAT



Specifications

Power Range:

0 – 100 W

Fuel Flow-Rate Range:

0.04 – 2 slpm

Dew-Point Temperature Range:

up to 90 °C

Options:

Potentiostat with EIS
(5 V | up to 100 A)

Max. Voltage & Current:

60 V | 60 A or 120 A

Oxidant Flow-Rate Range:

0.1 – 5 slpm

Gas Pre-Heating Temperature Range:

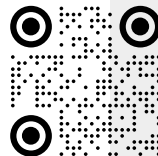
up to 120 °C

Back-Pressure Control Range:

up to 3 bar(g)

Applications

Single-cell testing is a great tool for the research and development of materials for fuel cells. Well-defined and repeatable conditions of Leancat PBT enable benchmarking of fuel cells also thanks to extensive scripting possibilities.



LEANCAT s.r.o.

Web: lean-cat.com
E-mail: info@lean-cat.com

LEANCAT



Fuel Cell Test Station PTS-10

Key features

Suitable for low-temperature
PEM fuel cells

Automatic control of flow
rate, humidity, temperature
and back pressure

Variety of electronic loads
and potentiostats available

Cell/stack temperature
control with liquid cooling

Robust system based on
industrial PLC with data
logging into SQL database

Safety features for fully
automated operation

Testing of short stacks or
large-area single cells
100 W - 1 kW

LEANCAT



Specifications

Power Range:

100 W - 1 kW

Fuel Flow-Rate Range:

0.5 - 25 slpm

Dew-Point Temperature Range:

up to 90 °C

Options:

Zero-voltage load, potentiostat with EIS, cell/stack pre-heating

Applications

Ideally suited for research and development of large-area single cells or verification of stack design on short-stack level. Well-defined and repeatable conditions of Leancat PTS-10 enable benchmarking of fuel cells also thanks to extensive scripting possibilities.

Max. current:

1200 A

Oxidant Flow-Rate Range:

1.8 – 90 slpm

Gas Pre-Heating Temperature Range:

up to 120 °C

Back-Pressure Control Range:

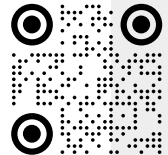
up to 3 bar(g)

Cell Voltage Monitoring:

Customizable number of channels

Liquid cooling of cell/stack:

up to 95 °C



LEANCAT s.r.o.

Web: lean-cat.com
E-mail: info@lean-cat.com

LEANCAT



Fuel Cell Test Station PTS-50

Key features

Suitable for low-temperature
PEM fuel cells

Automatic control of flow
rate, humidity, temperature
and back pressure

Variety of electronic loads
and potentiostats available

Cell/stack temperature
control with liquid cooling

Robust system based on
industrial PLC with data
logging into SQL database

Safety features for fully
automated operation

Testing of short stacks or
large-area single cells
1 - 4 kW

LEANCAT



Specifications

Power Range:

1 - 4 kW

Fuel Flow-Rate Range:

2 - 100 slpm

Dew-Point Temperature Range:

up to 90 °C

Options:

Zero-voltage load, potentiostat with EIS, cell/stack pre-heating

Applications

Ideally suited for research and development of large-area single cells or verification of stack design on short-stack level. Well-defined and repeatable conditions of Leancat PTS-50 enable benchmarking of fuel cells also thanks to extensive scripting possibilities.

Max. current:

1200 A

Oxidant Flow-Rate Range:

7.2 - 360 slpm

Gas Pre-Heating Temperature Range:

up to 120 °C

Back-Pressure Control Range:

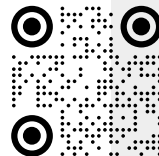
up to 3 bar(g)

Cell Voltage Monitoring:

Customizable number of channels

Liquid cooling of cell/stack:

up to 95 °C



LEANCAT s.r.o.

Web: lean-cat.com
E-mail: info@lean-cat.com

LEANCAT



Fuel Cell Test Station PTS-100

Key features

Suitable for low-temperature PEM fuel cells

Automatic control of flow rate, humidity, temperature and back pressure

Variety of electronic loads available

Stack temperature control with liquid cooling

Robust system based on industrial PLC with data logging into SQL database

Safety features for fully automated operation

Testing of short or full stacks
4 - 10 kW

LEANCAT



Specifications

Power Range:

4 - 10 kW

Fuel Flow-Rate Range:

5 - 250 slpm

Dew-Point Temperature Range:

up to 90 °C

Options:

Stack pre-heating, dead-end mode

Applications

Ideally suited for verification of stack design on short-stack level or scale up to full-stack level. Well-defined and repeatable conditions of Leancat PTS-100 enable benchmarking of fuel cells also thanks to extensive scripting possibilities.

Max. current:

1200 A

Oxidant Flow-Rate Range:

18 - 900 slpm

Gas Pre-Heating Temperature Range:

up to 120 °C

Back-Pressure Control Range:

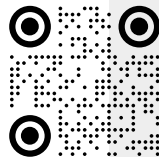
up to 3 bar(g)

Cell Voltage Monitoring:

Customizable number of channels

Liquid cooling of cell/stack:

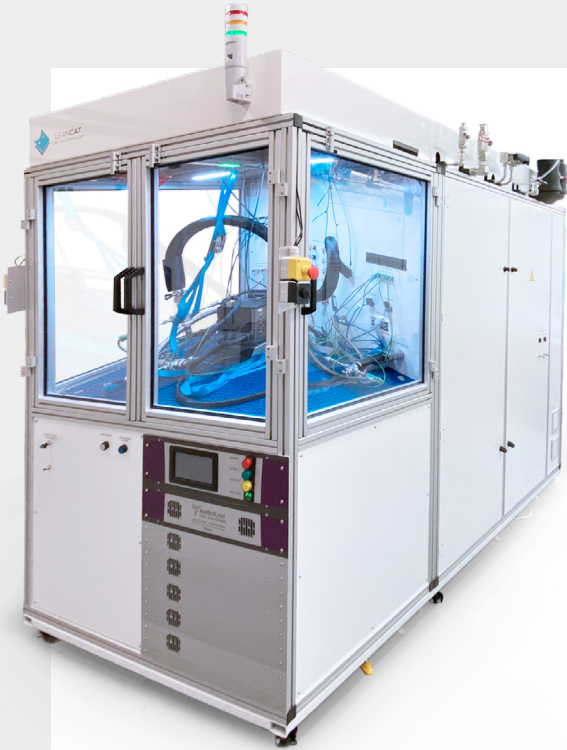
up to 95 °C



LEANCAT s.r.o.

Web: lean-cat.com
E-mail: info@lean-cat.com

LEANCAT



Fuel Cell Test Station PTS-500

Key features

Suitable for low-temperature PEM fuel cells

Automatic control of flow rate, humidity, temperature and back pressure

Variety of water-cooled or regenerative electronic loads

Stack temperature control with liquid cooling

Robust system based on industrial PLC with data logging into SQL database

Safety features for fully automated operation

Testing of short or full stacks
10 - 50 kW

LEANCAT



Specifications

Power Range:

10 - 50 kW

Fuel Flow-Rate Range:

25 - 1250 slpm

Dew-Point Temperature Range:

up to 90 °C

Options:

Stack pre-heating, dead-end mode

Max. current:

1200 A

Oxidant Flow-Rate Range:

90 - 4500 slpm

Gas Pre-Heating Temperature Range:

up to 120 °C

Back-Pressure Control Range:

up to 3 bar(g)

Cell Voltage Monitoring:

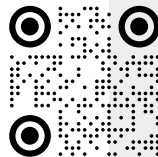
Customizable number of channels

Liquid cooling of cell/stack:

up to 95 °C

Applications

Ideally suited for verification of stack design on short-stack level or scale up to full-stack level. Well-defined and repeatable conditions of Leancat PTS-500 enable benchmarking of fuel cells also thanks to extensive scripting possibilities.



LEANCAT s.r.o.

Web: lean-cat.com
E-mail: info@lean-cat.com

LEANCAT



SOFC Test Station STS-10

Key features

Automatic control of flow rate, temperature and back pressure

Pre-heating of gas lines up to 900 °C.

Variety of electronic loads and potentiostats available

Integration of custom furnaces

Robust system based on industrial PLC with data logging into SQL database

Safety features for fully automated operation

Testing of solid oxide fuel cells and short stacks
100 W - 1 kW

LEANCAT



Specifications

Power Range:

100 W - 1 kW

Fuel Flow-Rate Range:

0.5 – 25 slpm

Temperature control of custom furnace:

up to 900 °C

Options:

Zero-voltage load, potentiostat with EIS, additional gas lines

Applications

Research and development of solid oxide fuel cells poses specific requirements to the testing equipment, as it must operate at high temperatures. Leancat STS-10 satisfies all requirements of SOFC testing with the ability to preheat inlet gases and extensive scripting possibilities.

Max. Voltage & Current:

1200 A

Oxidant Flow-Rate Range:

1.8 – 90 slpm

Gas Pre-Heating Temperature Range:

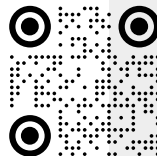
up to 900 °C

Back-Pressure Control Range:

adjustable

Cell Voltage Monitoring:

Customizable number of channels



LEANCAT s.r.o.

Web: lean-cat.com
E-mail: info@lean-cat.com

LEANCAT