

Leclanché: Who we are



**e-TRANSPORT
SOLUTIONS**



**STATIONARY
SOLUTIONS**



**SPECIALTY BATTERY
SYSTEMS**





Sales and
project
management



Sales, R&D
and project
execution



R&D and cell
manufacture
[BY-SA](#)



Headquarters,
R&D and
system
manufacture



Joint venture
with Exide
India
(Nexcharge)

Locations around the world

Leclanché: Our history



Georges Leclanché,
inventor of the
Leclanché battery

Leclanché S.A.
founded in
Yverdon-les-Bains,
Switzerland, for
the production of
dry cells

1971

Establishment of
the Willstätt site
in Germany

2012

Leclanché becomes a
fully, vertically
integrated, energy
storage solutions
company.

1909

Construction of a
new production
plant for
industrial
batteries

2006

Leclanché installs
a production
plant with a
capacity of up to 1
million cells.








2017



Cremzow, 22 MW
storage project in
Germany

Our cell technology

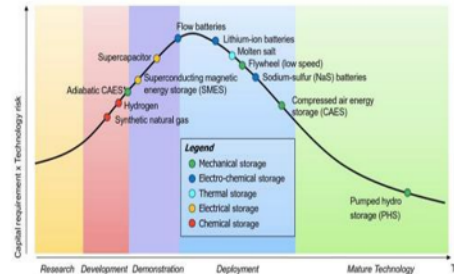
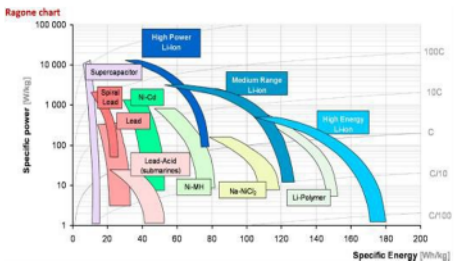
We deploy our proprietary Cells, yet remain flexible to incorporate other Storage technologies with our Software and Controls

		Lithium Titanate Oxide (LTO)	Lithium Graphite/NMC (G-NMC)
Cycle life		15,000 @ 100% DoD >20,000 @ 80% DoD	3,600 @ 100% DoD 6,400 @ 80% DoD
Lifetime & warranty		Up to 20 years	Up to 10 years
Charge time to 90% SoC		Less than 15 minutes (4C)	1 hour (1C)
Charge acceptance		Symmetrical to discharge (max. c-rate 5 to 20)	Asymmetrical to discharge (max. c-rate 1)
Energy density		70 Wh / kg	210Wh / kg in 2019 270Wh/ kg in 2020
Temperature range		-20°C to +55°C	0°C to +45°C
Safety		Ceramic separator technology	Ceramic separator technology
Ideal use cases		<ul style="list-style-type: none">• Ultra fast charging applications• Elevated temperature applications• Low temperature applications• Ultra long calendar and high cycle life applications	<ul style="list-style-type: none">• Suitable for commercial vehicles, trains and marine applications requiring a balance of characteristics including:<ul style="list-style-type: none">• High energy density• 3CP discharge• Fast charging• Good cycle life

The vast majority of applications use our technology...

Integrated 3rd Party Technologies

- Hydrogen fuel cells
- Vanadium redox / redox flow batteries
- Ultracapacitors



...but we remain flexible to integrate

Over 100 years of
battery and energy
storage
innovation,
powered by
German
Engineering and
Swiss Quality

Our activities



**e-TRANSPORT
SOLUTIONS**



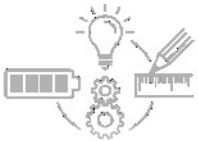
**STATIONARY
SOLUTIONS**



**SPECIALTY BATTERY
SYSTEMS**



**Utility-scale
generation &
microgrids**



**Specialty battery
systems**



eTransport



Power conversion systems

Drivetrains

Solutions delivery, including financing & EPC

Systems integration and engineering expertise

Battery management system (BMS)



Module design



**Third party battery
cells and other energy
storage technologies***



Proprietary G-NMC cells
for energy intensive
applications**



**Proprietary Lithium Titanate
Oxide (LTO) cells for leading
performance in long-life and
rapid-charge applications
(sole manufacturer in Europe)**

Our Reference Customers in eTransport markets

- High energy and high cycle life Cells reduce overall Total Cost of Ownership or operation for battery powered systems
- Industry proven solutions attract customers from across various transport industries
- Full vertical integration removes margin stacking allowing cost competitive solutions for industry
- Continual pricing pressure drives continual improvements from cell to system to reduce costs and improve performance
- Time for Leclanché to take the next step in technology and cost effectiveness



DISKUSSION ZU DEN VORTRÄGEN / *Discussion of the presentations*

FRAGESTELLUNGEN AN DEN VORTRAGENDEN

Questions for the lecturer

<https://fbr.io>

SESSION CODES:

Code Sektion Großmotoren (Kammermusiksaal): **APT2**
Session Large Engines (Hall Kammermusiksaal)

