Solutions for sustainable energy.
FIAMM Energy Storage Overview

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FIAMM ESS/ FIAMM Group

Group

Starter Batteries
210 mil euro

Industrial Batteries
190 mil euro

Horns & Antennas
115 mil euro

Sustainable Mobility
25 mil euro

Group

540 Mio €

FIAMM headquarters
Montecchio Maggiore (VI) - Italy

3,300 EMPLOYEES

11 PRODUCTION PLANTS

Europe
6 Production Plants

North America
2 Production Plants

South America
1 Production Plant

China
2 Production Plants

FIAMM

Energy Storage Solutions
FIAMM ESS/ FIAMM Group

- Battery Energy Storage Solutions
- **SO|NICK** the unique sodium nickel chloride technology by FIAMM
- On, Off, micro/hybrid
- System/Application Expertise
FIAMM ESS/ FIAMM Group

- Energy Storage
- Telecom
  - i.e. 1MWh T-Mobile USA
- EV Application
  - 120 million miles on the road
- Railways
  - i.e. Monorail (S. Paulo, Brazil) with Bombardier

- 100MWh installed and in service
FIAMM Energy Storage
Solutions
FIAMM Energy Storage Solutions. The answer to energy continuity.
Different in terms of:

- Customer needs
- Approach
- Value Chain
- Territorial Environments
- Capabilities

Similar in terms of: Product Requirements
FIAMM ESS/ Value Chain

- BESS
- PCS
- TRAFO
- HMI
- PPC

SOLUTIONS

- BESS 1
- BESS 2
- BESS 3
- BESS 4
FIAMM ESS/ SoNick Technology

Performances

- Hot cell (~270°C inside)
- Temperature Immunity (-40 ÷ +60°C)
- Cycling Capability > 4,500 cycles (80% DOD)
- Battery energy density 100÷120Wh/kg
  150-190Wh/lt
- Shelf life (> 20 years)
- No memory effect

Safety

- Intrinsically safe, electrochemical safety
- No gas emissions
- No flammable materials
- No fire/water flood reaction
- Industrial Process Control
- Tested on the field (EV, TLC, ESS,...)
- BMS control
- Cell/Battery Mechanical case

Zero Impact Battery

- NO dangerous materials
- 100% recyclable
- NO pollution materials
- NO gas emissions

2NaCl + Ni ⇄ NiCl2 + 2Na
charged cell

discharged

20% Salt
32% Cu
22% Miscellaneous
20% Ni
4% Fe
2% Ceramic

No pollution materials
No gas emissions
No flammable materials
No fire/water flood reaction
No memory effect

Industrial Process Control

BMS control

Cell/Battery Mechanical case
FIAMM ESS/ Energy Storage Battery Modules

Features

- Plug&Play concept
- High energy density battery pack
- New BMS designed for ESS applications
- Easy to handle
- Stackable
- Fast wiring
- Strong enclosure
- Battery module range

ST1 line

- 48 V
- 4/6/8/10kWh Nom.
- RESS Application

ST line

- 110V
- 220V
- INDUS Application

ST5 line (ST523)

- 620V
- 23,5kWh Nom.
- ESS Application