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# INNOVATION DAY ENERGIA 2023

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flexiEBUST

Rubén Puértolas  
Millor Battery

**+MILLOR**  
[www.millorbattery.com](http://www.millorbattery.com)



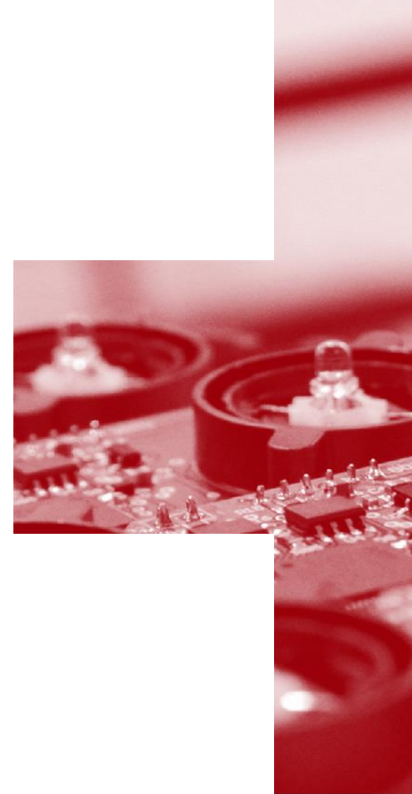
**23**  
**NOVEMBRE**



# MILLOR BATTERY?

High-tech company specialized in the design, development and manufacturing of **World best of its class battery packs for hybrid and electric vehicles** in medium series productions with very high added value, based on its **Smart BMS (Battery Management System)** and **Smart Thermal Management** own technologies.

The ideal partner for the growing market of companies that need tailored energy storage solutions with high level requirements despite not having very big volume productions.



# MILLOR BATTERY?

- **Stablished in 2015 with the vocation to become leader** at an international level for battery pack manufacturing in medium series.
- **Highly trained and industry experienced team**, 100% Private and independent company founded by Baltasar López (M.Sc. Industrial Engineering, >14 years experience in Battery and EV R&D, Founder of UPC ecoRacing in 2108, EURECAT Battery&EV Laboratory Manager for 7 years and Enchufing Founder ), today employees **25 full time expert engineers and technicians** (Coming from companies such as General Electric, Altran, Rucker Lypsa, Ascamm, Eurecat, Seat, BMW, ITW, IDIADA, NISSAN...).
- **Backed by the confidence of reference partners in the R & D + I**, EU, ACCIÓ, Ministerio de Industria, UPC, Eurecat.
- **Long-term project with industrial vocation**, Not only R&D and Engineering but also manufacturing with own factory.
- **Facilities in Barcelona**, >1600m2 facilities with assembly plant and prototype workshops.



# OEM TARGET MARKETS

## eMobility

In the field of sustainable mobility MILLOR BATTERY works developing projects in mainly three markets:



LIGHTWEIGHT  
VEHICLES



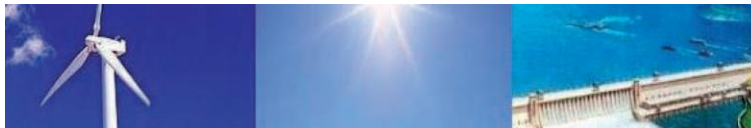
HEAVYWEIGHT  
VEHICLES



MOTORSPORT

## Stationary

The experience gained in the demanding sector of electric mobility allows MILLOR BATTERY to deliver outstanding solutions for stationary applications; from batteries for renewable energy up to uninterruptible power supply.



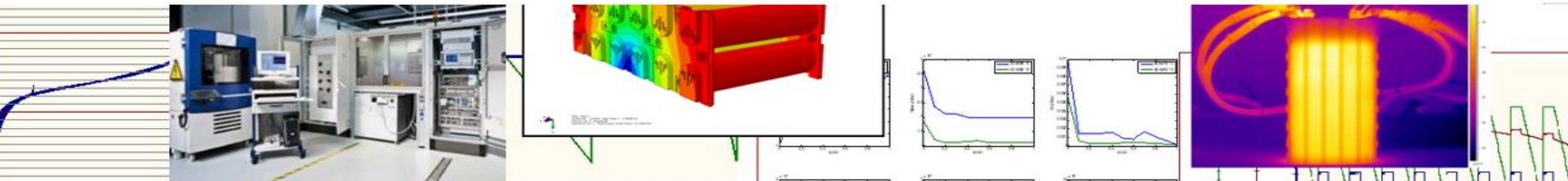
# ADVANTAGES

- **Millor Battery's Smart BMS** improving **SOC accuracy** and reducing driver's range anxiety.
- **Millor Battery's Active Thermal Management** System increasing operation capabilities (Agresive use, ultra fast charging, cold and hot climates).
- **Real taylored solution** regarding CUSTOMER's requirements with **minimum time to market**.
- World's **highest safety** features and standards improving reliability with **Monkey's SEF maintenance** system (Also remote diagnosis possibilities).
- World's **lowest weight**, allowing **extra range** and improving vehicle handling (>30%).
- World's **highest life cycle**, reducing range loss and **improving total cost of ownership** (Also 2nd life possibilities) (>>50%).
- Total **R100.rev2** compliant + **Intensive R&D laboratory development and validation**.



# TECHNICAL EXCELLENCE

- Designs are always according to R100 ESS regulations and validated with testing (Over temperature, undertemperature, overvoltage, undervoltage, shortcircuit, mechanical integrity, fire tests, etc), ISO 6469 and 38.3 UN compliant (needed for battery transport).
- Strong experience with laser, ultrasonic, and spot cell welding manufacturing apart from classic technologies.
- Cell, module and pack modelling and validation in battery laboratory with high power state of the art cyclers and thermal chambers.
- Experience working with all cell format, chemistries, and manufacturers for the last 12 years and use of state of the art cells thanks to partnerships with AAA class manufacturers.
- Life expectancy of all BP's is empirically demonstrated by real ageing in laboratory under real demand profiles.





# RECOGNITIONS AND AWARDS

2019-22 European SME EIC Accelerator  
Winner



Entrepreneur of the Year 2017 by Clustermoto



Most innovative company 2018 by Ajuntament de Cerdanyola del Vallès



Entrepreneurship award 2016 by Universitat Politècnica de Catalunya



Winner Business Plan Project Contest 2015 by ROTARY Club



Winner Banco Santander Yuzz- Explorer local 2016

# OEM PROJECT EXAMPLES

We don't develop just batteries; we only join if we are asked to develop the **World best of its class** battery.



World's smartest battery pack for ebikes



800kW output power with active thermal management



World's highest range eMinibus



Winning racing eMotorbike with 250cc equivalent performance



Baltasar REVOLT, World's first electric trackday car



Pure Symbiosis BP for redefined enduro bikes



The 1st 5G Autonomous Tricycle



Revolutionary carving board



# OEM DEVELOPMENT CHALLENGES

## MONEY

- >>> Very high investment
- No scale economy and single Project dependency

## TIME

- 18-36 Months for development and validation
- Type approval and certification process

## INFLEXIBLE

# SOLUTION

## High performance Smart modular batteries

flexi**FIVEL**<sup>®</sup>

[www.millorbattery.com](http://www.millorbattery.com)

Low Voltage battery packs for scooters, motorbikes, microcars and more.



flexi**EBUST**<sup>®</sup>

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High Voltage battery packs for eBuses, eTrucks and more.



**2019-22 European SME EIC Accelerator  
Winner**



## 360V and 613V smart modular batteries Automotive Certified with UN/ECE-R100rev2

- Really modular and scalable flexiEBUST® technology
- MILLOR® Safety Fast Maintenance Box
- Shortest Time To Market customized solution
- MILLOR® Smart Battery Management
- World's best battery density
- ISO 9001 & ISO 14001 Series production in Barcelona
- UN/ECE-R100rev2 certified
- Longest life with lower TCO
- Fast, safe and easy maintenance
- 360V Super Power, 360V Super Energy, 613V Super Energy versions



flexiEBUST®  
www.millorbattery.com

High Voltage battery packs for eBuses, eTrucks and more.



PLAY VIDEO



# Advantages

## MONEY

- >>> Inversión monetaria muy elevada
- Sin economía de escala, vinculación a un único proyecto

## TIEMPO

- 18-36 Meses de desarrollo y validación
- Proceso de homologación

## INFLEXIBILIDAD

## MONEY

- **Minimal** investment
- **Scale economy**

## TIME

- <<< **6 Months** customization/integration
- **Already type approved and certified** R100.rev2, UN38.3, ISO9001 e ISO 14001

## HIGHEST FLEXIBILITY



# flexiFIVEL®

www.millorbattery.com

Low Voltage battery packs for scooters, motorbikes, microcars and more.



PLAY VIDEO



## The first 52V modular battery Automotive Certified with UN/ECE-R100rev2

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- Shortest Time To Market customized solution
- MILLOR® Smart Battery Management
- World's best battery density
- ISO 9001 & ISO 14001 Series production in Barcelona
- UN38.3 Certified + UN/ECE-R100rev2
- Longest life
- Fast, safe and easy maintenance
- Different versions and multiple options



# OTHER R&D AND SPECIAL PROJECTS

- Second Life batteries: **REFER** Catalan project
- Stationary Storage for recharging applications: **Greencharge** European project
- **FIA Formula E** Finalist Tenderer and different teams consultancy
- Manufacturing of the first cobalt-free Lithium-ion batteries in Europe for **COBRA**

ACCIÓN

• Líder del projecte: COMSA CORPORACIÓN DE INFRAESTRUCTURAS S.L.

• COMSA CORPORACIÓN

• Empreses participants:

• Centres de Recerca:

• Universitats:

• Administració pública:



2020 CIVITAS

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GreenCharge

recharge, storage and process



**COBRA teams up with MILLOR BATTERY to manufacture the first cobalt-free lithium-ion batteries in Europe**

This article was originally published on [www.millorbattery.com](https://www.millorbattery.com)

The European consortium COBRA for the development of cobalt-free batteries has chosen the Spanish manufacturer MILLOR BATTERY for the production of its first cobalt-free batteries for electric cars.

The COBRA (Cobalt-free Batteries for Fuel-cell Automotive Applications) consortium aims to develop a new lithium-ion battery technology free of cobalt. The project has been underway for a year and now that the first phase of development participants is achieved, the consortium has chosen MILLOR BATTERY for the manufacture of prototypes and the first batteries. They have opted for the Spanish manufacturer for different criteria among which stand out their experience and knowledge in the design, development and production of batteries, both low and high voltage.

Thanks to the facilities that the company has located in Borriana, and where the batteries manufactured by the brand are already produced under the names **Hyundai** and **Hyundai IONIQ**, MILLOR BATTERY offers this consortium a technology, precision, quality and safety levels reference in the industry.

