

DEFENCE AND SPACE

# Space Products



P o w e r



B a t t e r i e s

# Battery Chamber of Reference for Airbus Group

Based on more than **20 years experience** with the Li-ion technology, Airbus has developed its own battery products for Space applications **since 2016** and now stands as a **key actor** in the Space battery industry.

## Who we are

Part of Airbus Defence and Space, the Battery Department was created in Toulouse in **2002**.

Our in-depth knowledge of **Lithium-Ion technologies** has allowed us to develop and propose **our own battery solutions**, for Space but also for electric flying vehicles, such as aircrafts, helicopters and Urban Air Mobility (UAM).

Thanks to our unique testing and manufacturing capabilities and our successful in-orbit heritage, we have been awarded as **Battery Chamber of Reference** at Airbus group level.

## Unique testing and industrial capabilities



- Own **Electrical Lab**, recognized as **Airbus Chamber of Reference** for energy storage testing, with more than 300 cells tests channels and 20 thermal chambers.
- Since 2019, a dedicated and automatized **Battery Assembly Line (BAL)**, with more than **500m<sup>2</sup>** for assembly and tests.



*More than 1300 flight battery modules already manufactured*



## Did you know ?

To date, more than **175 thousand** COTS cells have been used and more than **100 thousand** are in orbit, leading to an impressive number of **88 billion cells hours** of successful space operation with no reported failure.



A **second manufacturing assembly line** is currently under construction **in Spain**, offering **over 300m<sup>2</sup>** for assembly and testing, with an expected operational date by the end of 2025

## What we do



### CELLS

Continuous electrochemistry cell technology screening and testing

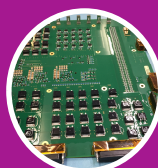
ESA approved space qualification plan



### BATTERY DESIGN

- Mechanical, electrical and thermal design and simulations

- Cleanliness, contamination, radiations and RAMS analysis  
- EMC/ESD compatibility



### BATTERY MANAGEMENT SYSTEM

- Hardware ECSS / DO254  
- Software ECSS / DO178  
- Algorithms & Modelling



### MANUFACTURING

- Fast prototyping  
- Serial production (Battery Assembly Line)



### TESTING

- Environmental ECSS / DO160  
- Electrical & Safety ECSS / DO311

END-TO-END

# Our Space Battery Products

## KEY FEATURES

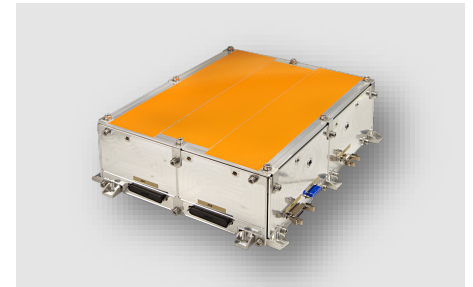
- COTS Li-ion cells qualified for Space
- Industrial design
- Modularity
- Competitive REC prices
- Optimized lead-times
- Not submitted to export licences

### STELLAR-BATT MADE FOR CONSTELLATIONS

**STELLAR-BATT** is a **Space Equipment** product line specifically developed to address **Low-Earth Orbit (LEO) constellations**.

This innovative product line includes **two distinct modules**, offering **from 900 to 3600Wh** for a **30V bus**.

To meet the price targets of the space constellation industry, the STELLAR-BATT module incorporates **EEE automotive COTS components** and **COTS Lithium-ion cells**, rigorously qualified by Airbus.



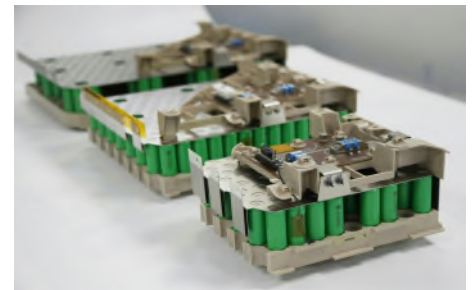
> 630 satellites in orbit  
> 2000 years in orbit cumulated lifetime

### COSMO-BATT MADE FOR GEO/MEO

**COSMO-BATT** is a **Space Equipment** product line specifically developed for **GEO/MEO Telecom and Navigation satellites**.

The design is based on a **modular approach** in order to cope with specific mission requirements while minimizing battery mass and NRE costs.

Single module's energy ranges **from 500 to 3000 Wh**. Several modules are connected in series in order to address **30V, 50V and 100V buses**.



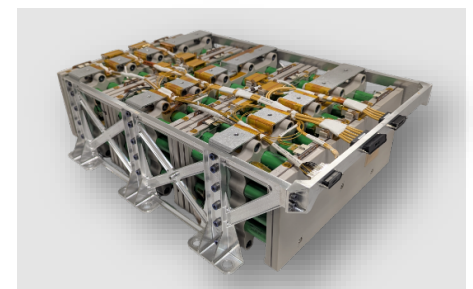
> 90 modules in orbit  
> 300 FM units manufactured

### ASTRO-BATT MADE FOR LEO

**ASTRO-BATT** is a **Space Equipment** product line specifically developed for **Low-Earth Orbit (LEO) missions**, addressing both **radar and optical** missions' requirements.

The module can be provided in **3 different voltage configurations** : **30, 50 and 100V**, with the same mechanical design, and installed internally or externally to the spacecraft. Its energy can be tuned **from 3600 to 5400Wh** by adjusting the number of bricks.

Supplied with **ECSS class 1 components**, it is compatible with **ESA missions**.



First FM units to be delivered  
beginning of 2025

### LAUNCHER-BATT MADE FOR LAUNCHERS

**LAUNCHER-BATT** is a **Space Equipment** product line dedicated to **the launchers market**.

It incorporates two different products, that can be used for **launcher's units power supply** or to **power source the pyrotechnics orders** for example.

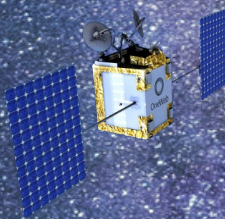
Each module embeds **fuses** in order to ensure the **safety** in case of short circuit for example.



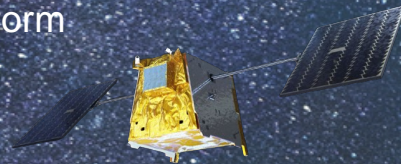
> 160 FM units manufactured  
1st launch mid-2024 of 28 FMs

# Our Missions Heritage

**ONEWEB**  
Constellation



**ARROW**  
Platform



**STELLAR-BATT**

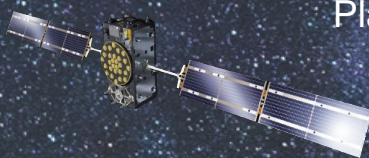
**EUROSTAR NEO**  
Platform



**ONESAT**  
Platform



**GALILEO**  
Platform



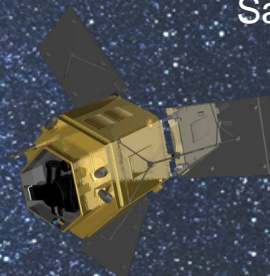
**COSMO-BATT**

**ARIANE 6**  
Launcher



**LAUNCHER-BATT**

**ESA FORUM**  
Satellite



**ASTRO-BATT**



For further information please contact:  
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**AIRBUS**

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