



EUROAVIA NAPOLI “UMBERTO NOBILE”- Gianmarco Valletta, Presidente

**Lo stato dell'arte, della ricerca
e dei programmi sperimentali**

- Introduction

- Why?

- Company Solutions

- Aero + Space



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INTRODUCTION

E-Bremskraftverstärker
Electric brake booster

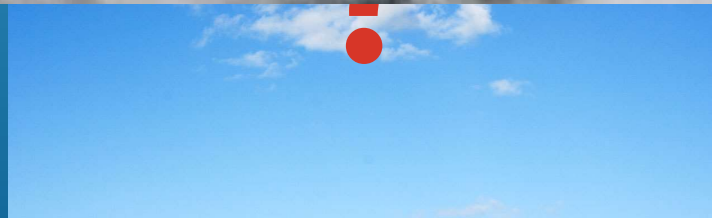
Hochvolt-Batteriemodul
High voltage battery module

Kraftstofftank
Fuel tank

Leistungselektronik
Power electronics

Batteriekühlung
Battery cooling

12V-Batterie
12 volt battery

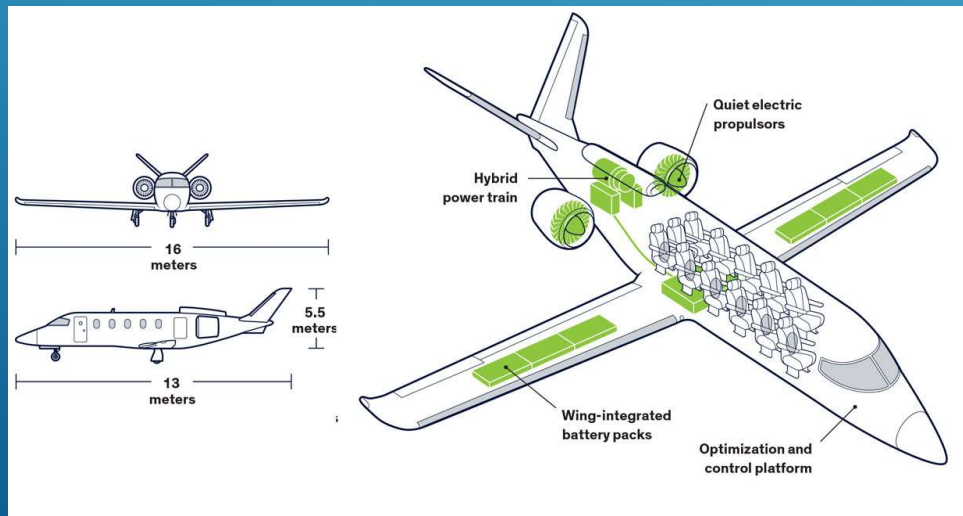


INTRODUCTION

Zunum Aero

La start-up sta realizzando un aeroplano con propulsione ibrida elettrica-gas per la Boeing e la JetBlue

Payload: 12 pax
Max. Cruise speed: 360 kts
Take off distance: 2200 ft
Target range (year 2022): 700 km
Target range (year 2030): 1000 km
Direct op. costs: 260 us\$ x hour
Hybrid engine: Safran's Ardiden 3Z



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WHY?

ADVANTAGES

- Reduction of fuel consumption;
- Decreased noise pollution;
- Low costs.

DISADVANTAGES

- High Weight;
- Safety and Chemical Stability.

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COMPANY SOLUTIONS - HYPSTAIR PROJECT

The **200 kW** motor of the **HYPSTAIR** project is the most powerful hybrid electric propulsion system ever developed for aviation up to now and provides an amount of energy equal to traditional aircraft engines.



COMPANY SOLUTIONS - MAHEPA PROJECT

Modular Approach to Hybrid-Electric Propulsion Architecture



Internal Combustion
Engine
+
Fuel Cell Hybrid System

COMPANY SOLUTIONS - E-FAN X PROJECT



**Son of Airbus,
Rolls-Royce
and Siemens**

The goal of the project is to get to replace two traditional turbines of a BAe 146 with two electric motors.

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AERO + SPACE - ORBITAL MANEUVER

In spaceflight, an orbital **maneuver** is the use of propulsion systems to change the orbit of a spacecraft.

LOW THRUST

ADV

- Simple;
- High Specific Pulse;
- Small Propellant Consumption.

DIS

- Thrust less than 1N;
- Acceleration about $10^{-4}g_0$;
- Very long time mission.

HIGH THRUST

ADV

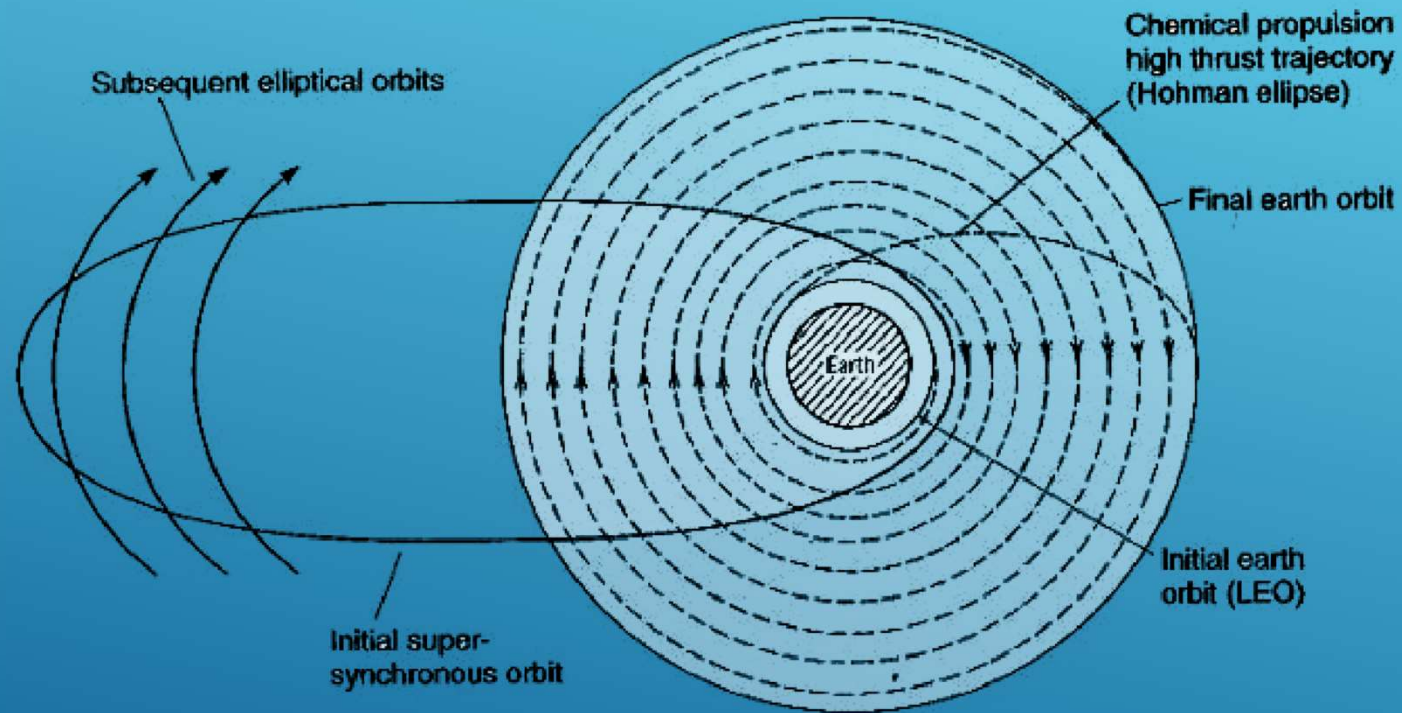
- Short time mission;
- Strong Boost;
- High acceleration.

DIS

- High fuel consumption;
- High costs.

Those who go slowly go
well and far!!!!

AERO + SPACE - ORBIT RAISING



THANKS FOR THE ATTENTION!

