

# ***S.A.B. AEROSPACE***

## ***COMPANY PRESENTATION***

***ESO Industry Day - 22/06/12***

# Company overview - *General*

## ➤ **S.A.B. Aerospace MISSION**

- Provide Qualified Mechanical Aerospace Structures starting from the project specifications. S.A.B. Aerospace has the capabilities to design, produce and test mechanical structures for the aerospace market.
- Develop systems, technologies, and products to apply to aerospace industry.
- All employees have a long expertise in the aerospace sector and bring their own specific capabilities to the company, to offer valid and innovative products on the market

# Company overview - *General*

## ➤ **CORE BUSINESS LINES**

### **Space activities**

- Mechanical Design, manufacturing and test of space systems and sub-systems
- Thermal Control System design for satellites
- Consulting activity for MT Mechatronics on Sardinia Radio Telescope

### **Aeronautical Activities**

- Development and industrialization of light unmanned aircrafts (UAV)

## **MAIN LOCATIONS**

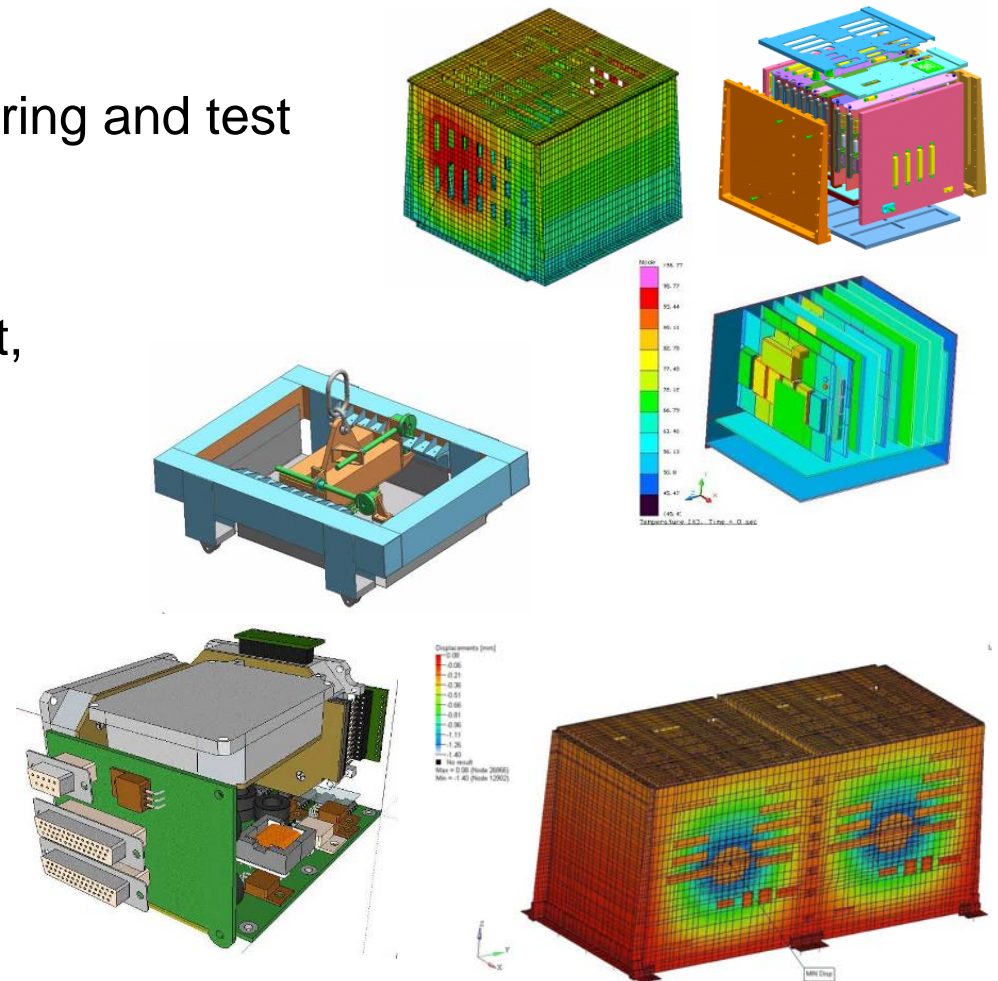
- Benevento – Headquarter
- San Giorgio del Sannio (BN) – Manufacturing & Test
- Ancona – R&D on Materials
- Milano - Marketing

# Technological assets and products - *Satellites*

## ➤ On Board Satellites Products/Components and subsystems

Thermal - Mechanical Design, manufacturing and test of space products and subsystems

- 3D CAD : Modelling, drafting, Part List, Unit & Board Configuration
- Detailed Structural Analysis
- Detailed Thermal Analysis

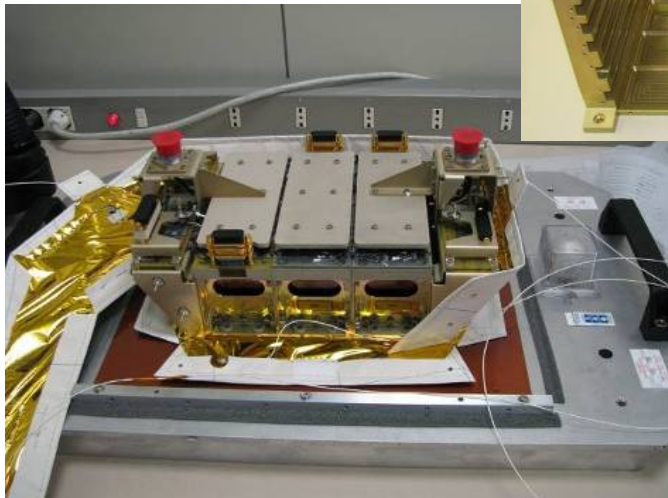
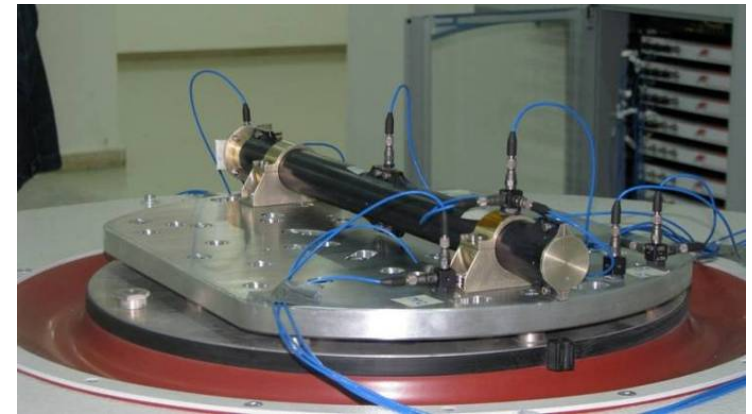




# Technological assets and products - *Satellites*

## ➤ On Board Satellites Products and Components

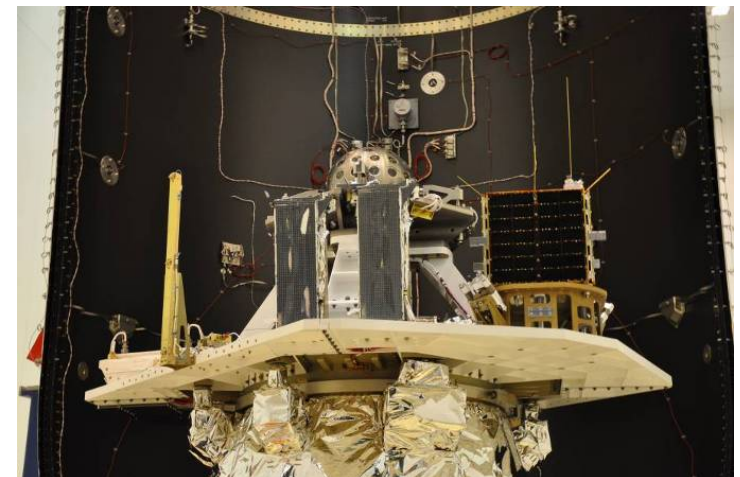
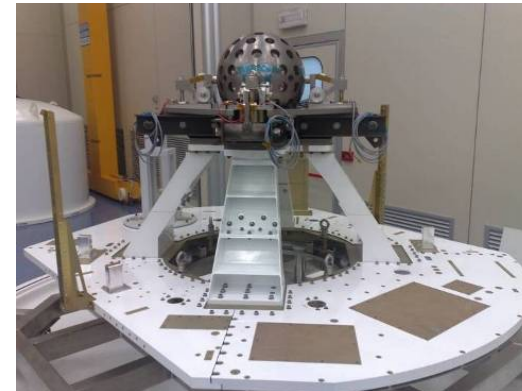
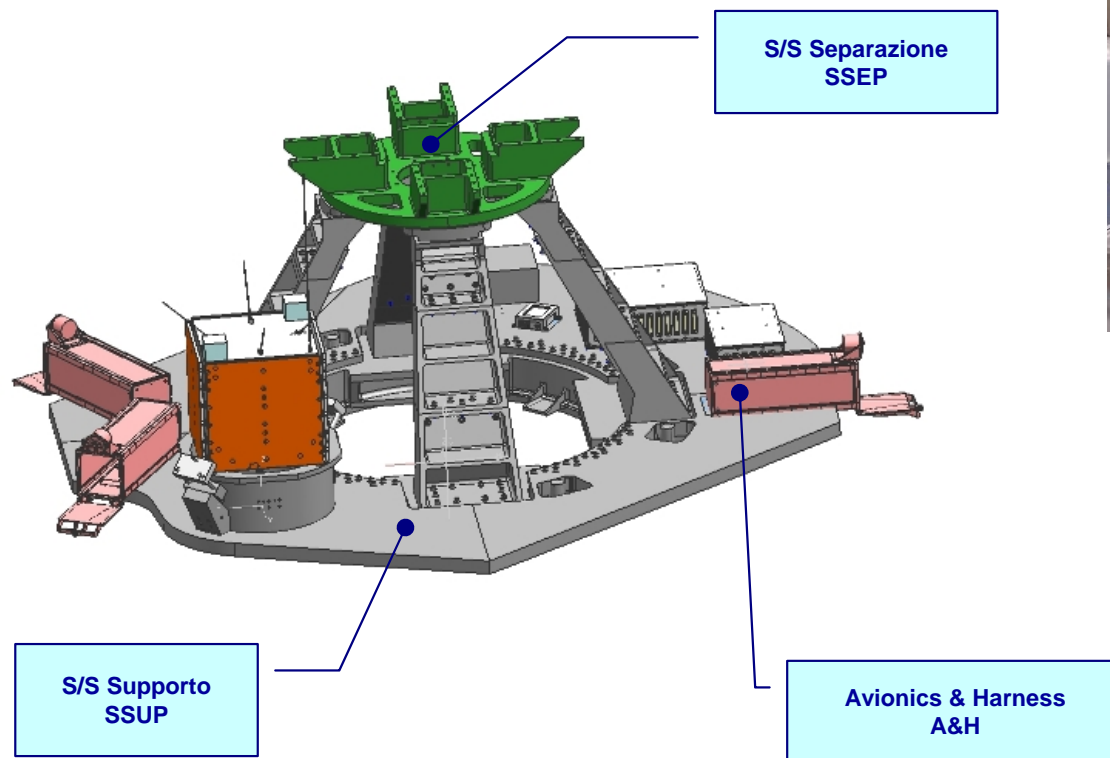
- Attitude Control Systems (ACS)
- On Board Data Handling
- Battery unit



# Technological assets and products - *Satellites*

## ➤ **LAser RELativity Satellite Support System (LARES SSUP)**

Mechanical Design of the Italian Space Agency (ASI) LARES SSUP

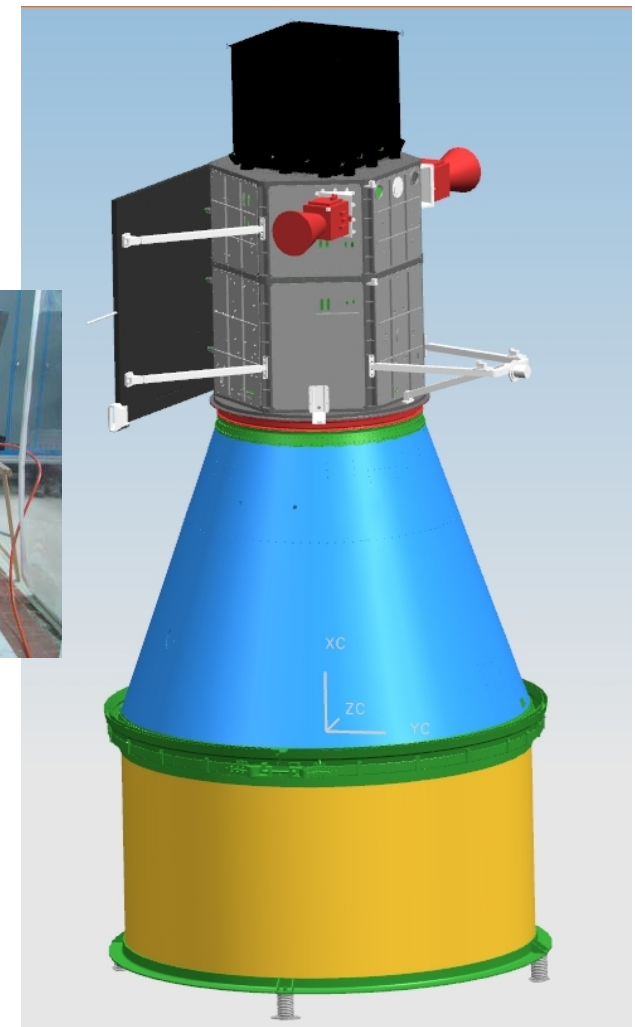
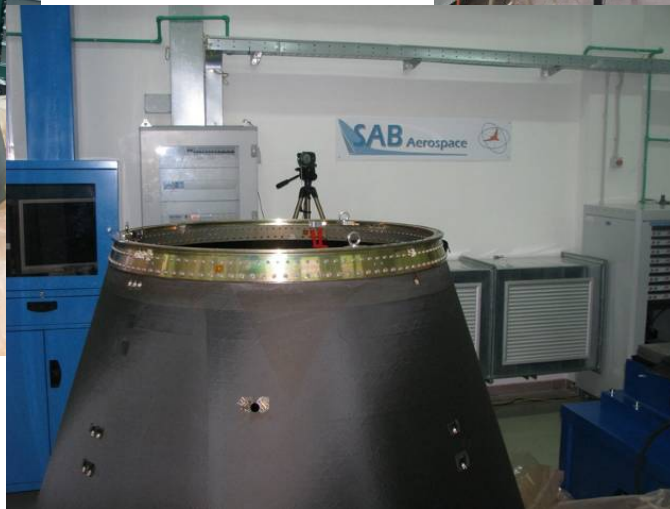




# Main Projects – *PAYload Shock Test Apparatus*

## ➤ Development of the **PAYload Shock Test Apparatus (PASTA)** for the **VEGA** launcher

PASTA aims to generate a shock at the spacecraft bottom interface representative of the Vega stages separation events (Fairing and 3-4 separation).



# Main Projects – *PAYload Shock Test Apparatus*

## ➤ First PASTA application: LISA PF Shock Test

LISA Path Finder is the first satellite tested using the PAYload Shock Test Apparatus.





# Main Projects – *Galileo MGSE*

- Engineering Support for the design of the Slide Unit (SU), the Horizontal Hoisting Device (HHD), the Big Panel and the Small Panel Integration Frame (BPIF & SPIF) of the Galileo Satellite





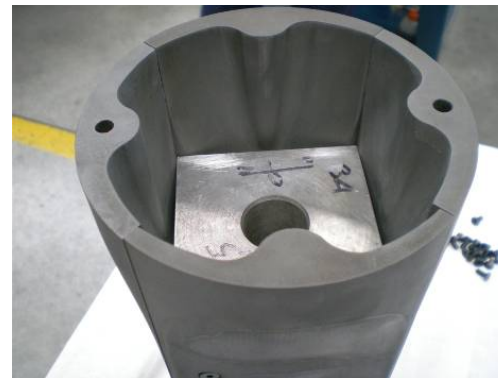
## Research – *Main Research Areas*

- **Guidance, Navigation and Control Systems**
- **Innovative Materials (advanced ceramic and Mg alloys)**
- **Thermal Technologies**
- **Opto-mechanical devices**

# Research – *Enabling Technologies*

## ➤ ULTRA HIGH TEMPERATURE CERAMICS (UHTC)

### Manufacturing of complex shape UHTC





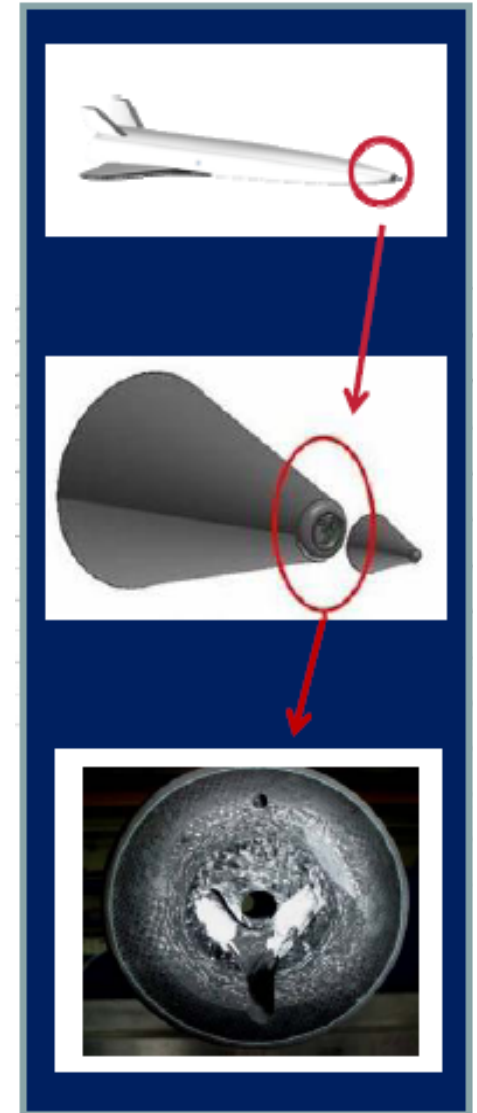
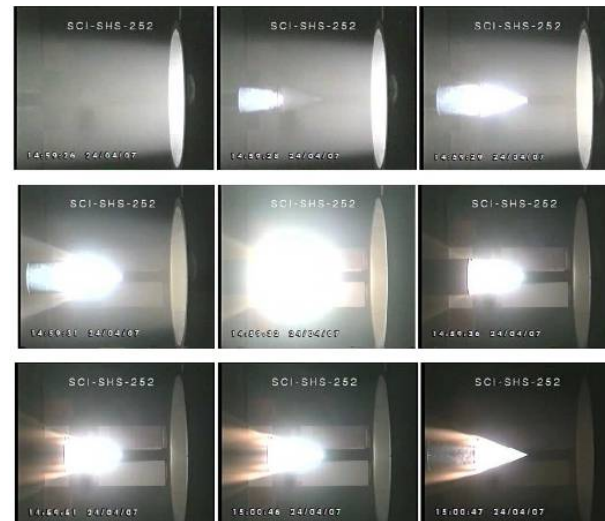
# Research – *Enabling Technologies*

## ➤ FIBER OPTIC SENSORS (SHMS)

Structural Health Monitoring Systems (SHMS) for thermal-mechanical analysis of Thermal Protection Systems

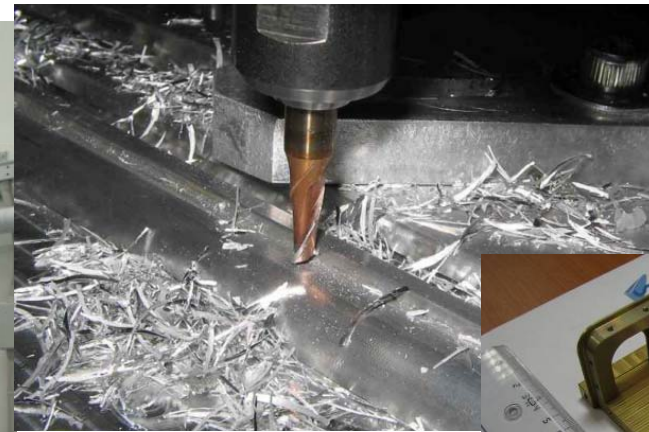
### SHM Systems applications

- Sensor systems to monitor thermal integrity of aerospace structures for reusable manned and unmanned vehicles.
- Civil structures & Engineering
  - Tunnels
  - Bridges
  - Dams
  - Buildings
- Energy Infrastructures
  - Pipeline
  - Reservoirs
  - Smoke stacks
  - Offshore platforms
- Geotechnical
  - Seismic monitoring systems
  - Landslide monitoring
  - Foundations
- Composite materials



# Laboratories – *Mechanical Workshop*

## ➤ SAB Aerospace CNC Machine Tool

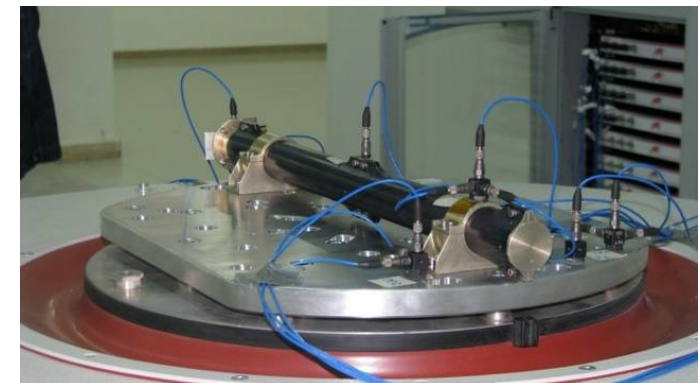
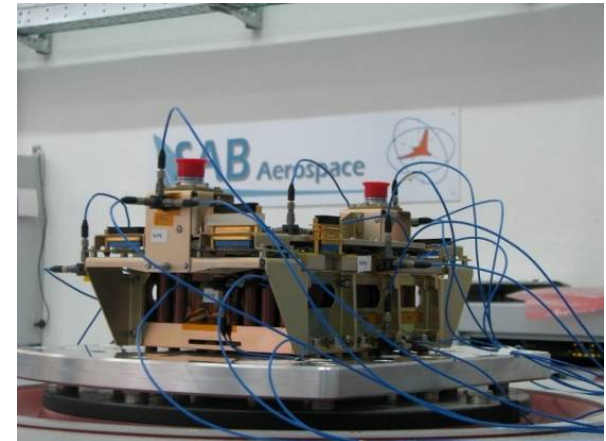




# Laboratories – *Vibration Test Facility*

## ➤ **SAB Aerospace Vibration Test Facility**

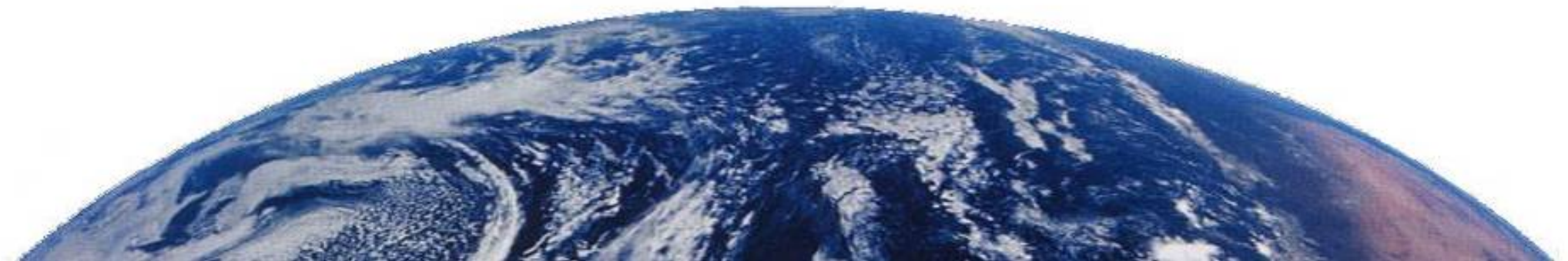
The Vibration Test Facility is composed by a 49 kN electrodynamic shaker mounted inside a 100000 Class clean room equipped with a (1 ton) lifting crane for the handling of the test articles.







**SAB Aerospace is member of the  
ANTARES Consortium**



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# ANTARES

## ANTARES Consortium

The **Consortium** was originally created to promote the innovation and development of SMEs in the space sector, with **C.G.S. S.p.A.** (Compagnia Generale per lo Spazio - General Space Company) as the reference company, supported by an important group of companies in Campania sharing complementary and similar experience.

**Antares** focuses on satisfying the design and production requirements of components and technologies for application satellites, remote sensing and telecommunications services, whilst also covering aspects of Research, Development and Industrialisation.

The **associated companies** – thanks to the experience and system support collaboration accumulated in the space sector, have been able to implement the initial developments of both the attitude control equipment and the energy subsystem as well as commercial satellite telecommunications. Consortium members have also acquired the technologies and resources necessary to produce a new generation of small satellites.



# ANTARES collaborations





# ANTARES Partnership





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