

- Orbital systems
- Launchers
- Satellites
- Ground segments
- Balloons
- Transversal competencies



CES Works Group is specialized in disruptive innovation (TRL 1 to 5, functionalized structures, complex systems). We think outside the box to meet our subsidiaries and our clients' needs in the space, aeronautics, military, railway and scientific sectors.

Our subsidiary *CES Services* offers expertise in the field of breakthrough innovation, particularly in design, calculation, instrumentation, testing, repair and associated economic aspects.

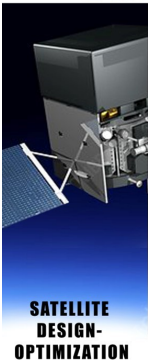
COMPETENCIES & CAPABILITIES

We work as well in the field of launchers (from micro to heavy) as in the field of space vehicles (including new space). We are specialized in:

- Structure optimization and instrumentation (metallic, composite, multi-material),
- Thin (0.2mm) to thick structures (200mm),
- Functionalized structures (E.M.I., radiation, specific needs, embedded electronics...),
- Compliant mechanisms and deployable structures,
- Space manufacturing,
- Associated control command system.

EXPERTISE

DEVELOPMENT



CES WORKS

PRODUCTS & SERVICES

Services and expertise:

- Design and characterization of materials and structures (TD and TP composites, elastomers, shape memory alloys, auxetic materials, ...).
- Digital twins' development.
- Implementation and operation (very low / high temperature, detonation, radiation) of in-house and off-the-shelf sensors (fiber optic Bragg gratings, Piezo sensors (process monitoring, behavior monitoring), Mems sensors ...);
- Definition of instrumentation strategies (multi-scale) from design to use;

Products:

- Embedded and multifunction AI
- Multi-mission System management
- Lego approach Plug & play
- Optimized Tracking system

MAJOR SPACE PROJECTS & REFERENCES

* Our collaboration: Airbus D&S, ESA, CNES, CNIM, Thales Alenia Space... for example:

- We worked with IN2P3 and LLR on the structure of the Glast Fermi Calorimeter (study on gamma radiation). We worked on the design, optimization, process/material links, mechanical and thermal modeling, and certification.

* I-NOV6 COMPETITION (2020): we have been selected to develop 2 core technologies of a space project (multi-mission management board and Plug & Play interface).

* CNES R&D Challenge (April 2021): winners of the CNES R&D challenge on upper stage reuse.

POINT OF CONTACT

ADDRESS 131, Traverse de La Penne aux Camoins - BT 4 - Actiparc 1
13821 La Penne Sur Huveaune, France

WEBSITE www.composites-expertise-solutions.com/

PHONE +33 (0)7 66 89 97 58

POINT-OF-CONTACT: Meltzheim Anouk - Business Developer,
Anouk.meltzheim@ces-works.com

TURNOVER /

WORK FORCE 9 employees

SPACE TURNOVER /