



# ASTAB

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ENGINEERING

The company excels in various fields of expertise

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# The Company

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ASTAB Engineering is a pioneering company in the aeronautical and space industry, known for its **cutting-edge engineering solutions.**

Founded in 2020, ASTAB began as a small venture with a vision to revolutionize aerospace technology. Today, it stands out for its **unique strength**: a **diverse team** of designers and engineers from various backgrounds and specializations. This **multidisciplinary approach** allows ASTAB to tackle complex challenges with innovative, customized solutions. The company's **commitment to excellence** and collaboration has solidified its reputation in the aerospace sector.



High-Quality Engineering



Aerospace Expertise



Multidisciplinary Team



Extensive Industry Experience



Diverse Project Applications



Project Development

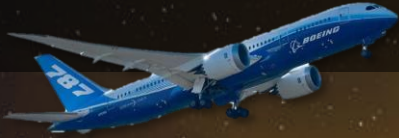
# Experiences & Projects

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ASTAB Engineering has worked on a wide range of projects in the aeronautics and space industries. The company has developed **structural components** and composite parts for aircraft, contributed to satellite engineering, and specialized in creating jigs for **precise manufacturing**. ASTAB has also been involved in pax-to-freighter conversions and the development of luxurious VVIP interiors for private aircraft, focusing on ergonomics and cutting-edge materials. These diverse projects showcase ASTAB's broad expertise and commitment to excellence in aerospace engineering.

## B787

Fan cowls and horizontal stabilizer



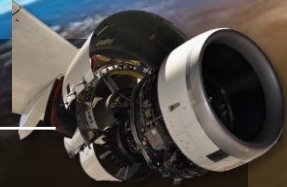
## A380

Nacelle Thrust Reverse



## A318

Nacelle complete  
Structures and Systems



## B777&B787 VVIP

Interiors  
reconfiguration



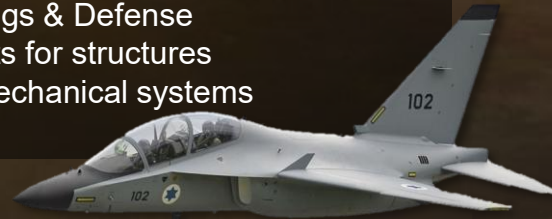
## ERJ170 & DO728

Complete EBU System for  
GE CF34 Engine



## M346 & MB339

Trainings & Defense  
projects for structures  
and mechanical systems



## AW09-AW149

New doors for pilot, passengers  
and cargo in composite material



## A350 & DO328

Structural design fuselage  
and systems



## Velocity - Volocopter

Mechanical integration for aircraft systems.  
Design support of primary and secondary  
structures.  
DMU integration.  
Harness design for FTI.  
Installation and manufacturing drawings



## ICMS Engineering Support

Engineering support for the development, verification, and finalization of interface control models and documents for propulsion system installation, based on legacy designs and supplier coordination. The activity ensures interface consistency, design maturity, and effective integration across all involved systems and partners.



## 3D-2D Conversion

Primary and secondary structures 3D/2D fuselage, fairings, and empennage design, including the conversion of 3D models into 2D technical drawings. The activity is based on the new aircraft digital models while adapting and updating legacy drawings to ensure design continuity, and efficient integration into the new platform. Tooling design for machined and sheet metal structural parts.

## FTE Base Plate design

Support for the development of the FTE base plate, including design, stress analysis, and manufacturing of a set adapted to the new seat mounting layout.

## Pax-to-freighter

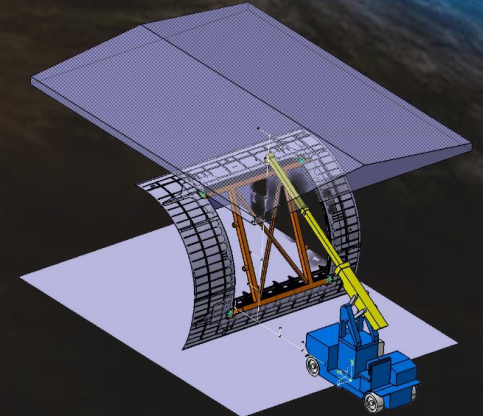
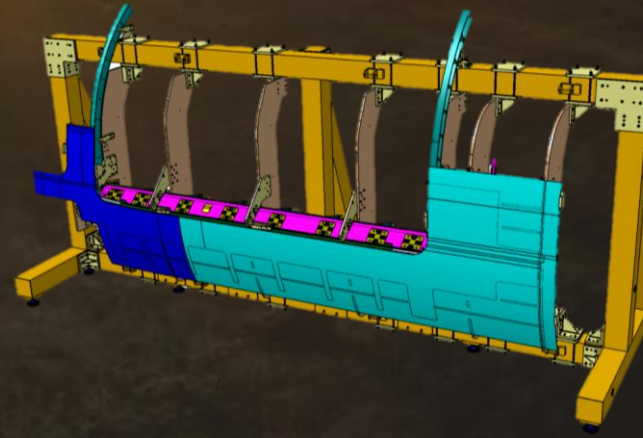
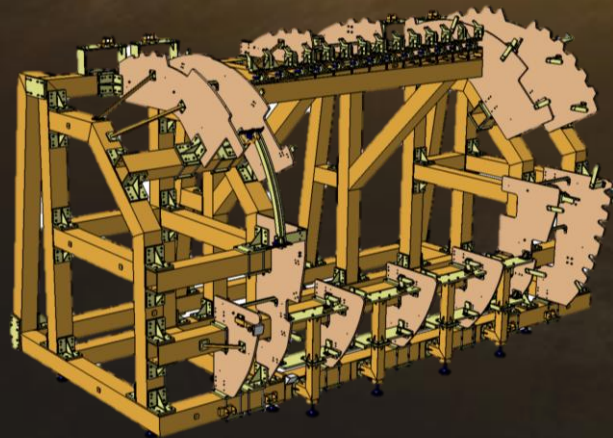
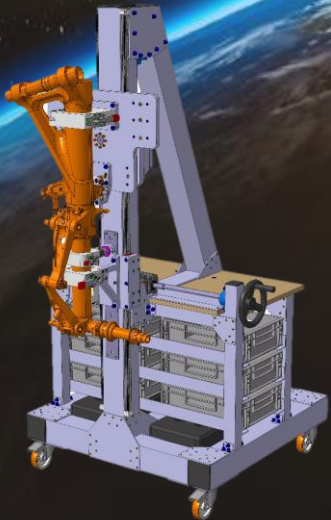
Manufacturing Toolings Design for pax to freighter conversion in a large airplane for projects B737, B767 and A330.

## Preliminary study

Extensive knowledge on the toolings design starting from preliminary study and space allocation until the choice of materials, analysis for installation, vibrations and temperature impact considering the large size of the toolings.

## Position on jig

Large experience in simulation to position the large parts into the big box ready for shipment.

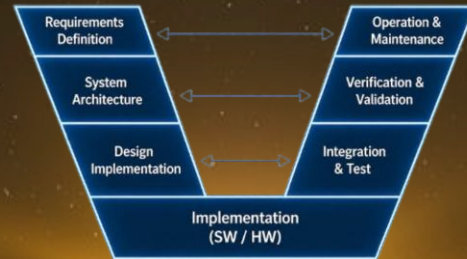


Our engineering activities follow ECSS standards for mission and safety critical space systems



## 1. ECSS FRAMEWORK

- ESA standard reference
- V-model lifecycle
- Requirements traceability



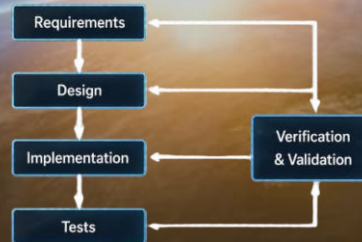
## 2. SYSTEM ENGINEERING

- ECSS-E-ST-10
- Architecture & Interferences
- Verifications & Validation



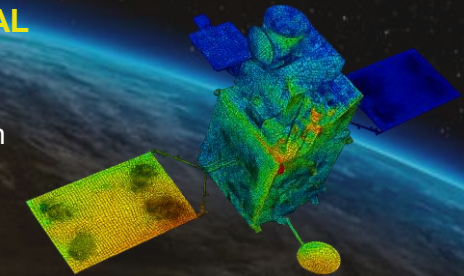
## 3. SOFTWARE & QUALITY

- ECSS-E-ST-40
- ECSS-Q-ST-80C
- Traceability & Assurance



## 4. MECHANICAL & THERMAL

- ECSS-E-ST-31 / 32 / 33
- Structural & Thermal design
- Analysis, Simulation & Testing



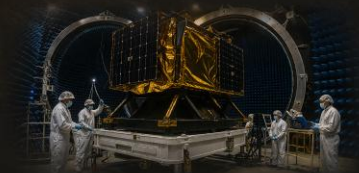
## 5. PROGRAM EXPERIENCE

- ECSS Class A / B / C
- Launch & Space systems
- Partners: D-Orbit, The Exploration Company



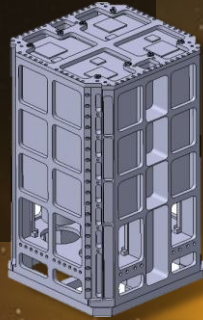
## 6. ENGINEERING APPROACH

- Mission & Safety critical systems
- Multidisciplinary teams
- End-to-end lifecycle



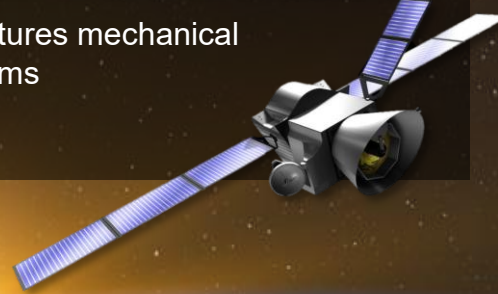
## NPC – Testpod

Modal Analysis  
Static Analysis at 37g, 45g  
and 77g  
Bolt Analysis  
Redesign post structural  
analysis



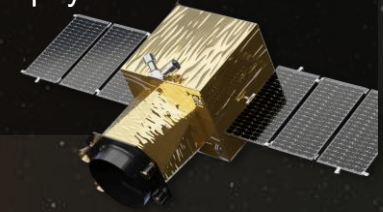
## BEPI COLOMBO

Structures mechanical  
systems



## CubeSat

Structure and payload  
experience



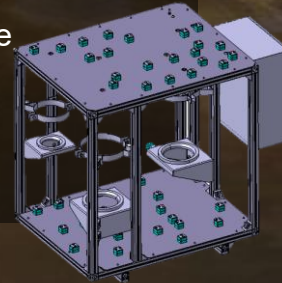
## NPC – Deployer

Design and structural  
analysis of Satellites  
Deployer and Testpods  
for environmental testing,  
until Final Report.  
Model 12U and 16U.



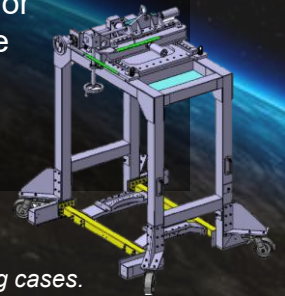
## D-ORBIT

MGSE Design and  
Structural Analysis for the  
fluidic breadboard of the  
refueling system inside  
the PNRR IOS program.



## SITAEI

MGSE Design, Structural  
Analysis and Production for  
Vertical Hoisting Structure  
(VHS) Lifting Device for  
PLATINO satellite.



- *Modal Analysis for eigen-frequencies identification.*
- *Quasi-static Analysis.*
- *Kinematic application and simulation*
- *Bolt Analysis.*
- *3D Modelling and DFM.*
- *Feasibility analysis*
- *Software used: FEMAP.*
- *Analysis based on ECSS regulations.*
- *TVAC and Thermal Tests Engineering support*

- *Static Analysis.*
- *Bolt Analysis.*
- *3D Modelling and DFM.*
- *Software used: ABAQUS.*
- *Analysis based on ECSS regulations.*
- *Assembly Sheets.*

- *Structural Analysis in different hoisting cases.*
- *Stability Analysis.*
- *Bolt Analysis.*
- *3D Modelling and DFM.*
- *Assembly Sheets.*
- *User Manuals and Design Reports.*
- *Production Engineering Support.*
- *Software used: FEMAP.*
- *Analysis based on ECSS regulations and Safety of Machinery.*

## Composite Design

Modeling of composite parts using a zoning approach (pending final analysis) for fabric layers, with or without core material, including engineering release and production release (joints and final ply definitions for the ply book).

Preparation of 3D models and ply books for supplier delivery.

Manufacturability studies and verification of compliance with internal composite design rules (e.g. increased edge distances for fasteners, inserts, fiber orientation where required), under the guidance of the TEC team.

## Thermal Control System (TCS)

Detailed design support (3D/2D) for the Thermal Control System (TCS), covering design, assemblies, and installation activities using Siemens NX and Teamcenter, and for composite parts using Siemens NX, Teamcenter, and Fibersim.

Support in the development of TCS engineering models, including detailed design and manufacturing drawings.

Mass management across the entire CAD model.

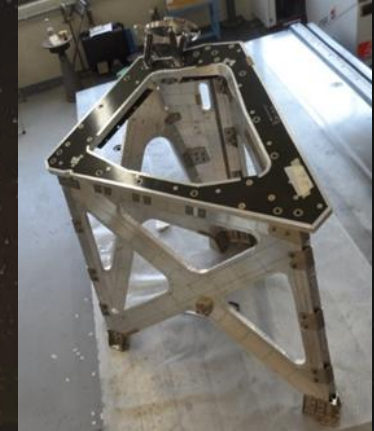
Development of the pump and piping sub-assembly, from concept to manufacturing, including detailed design and fabrication drawings

## Design support

Detailed design support (3D/2D) for the design, assembly, and installation of electrical boxes using Siemens NX and Teamcenter. Project optimization activities focused on welded structure mass reduction, while ensuring compliance with structural safety requirements and redefining material solutions (stiffening concepts, thicknesses, welded joints).

## Optical design

- Sensitivity Analysis
- On Orbit Performances Assessment
- Stray Light Analysis

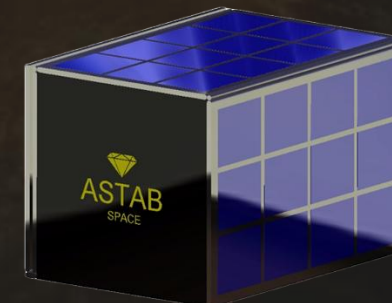
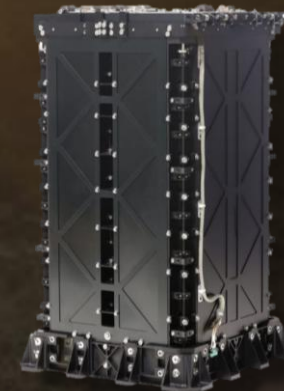
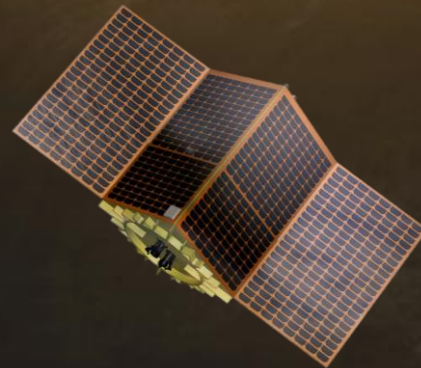


## Electronic engineering

- System Electrical Engineering
- Detector Specification and Procurement
- EEE part selection, Data Processing, Software Spec
- EGSEs Design specification and Procurement

## Mechanical engineering

- Structure Design
- Optomechanical Design
- Thermal Architectural Design
- ISS payload assemblies



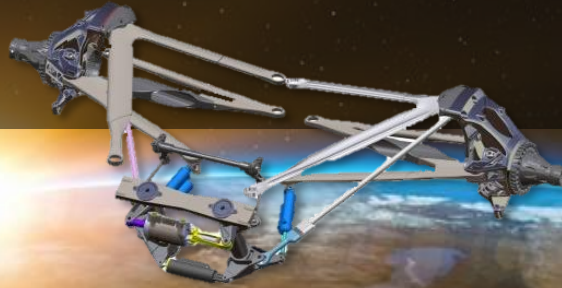
## Koenigsegg Regera

Development of composite structure and test rigs.



## Ferrari F1 Team

Design and development of a suspensions test equipment.



## S-BAHN

Complete interior reconfiguration.  
New sandwich composite floor.



## Assembly line projects

- **OLIVOTTO – ANTAS:** Development of new Hollow Glass Machinery
- **OLIVOTTO – ANTAS:** Development of new Conveyors Machine & Take-out
- **PRSE:** Development of a new automatic welding system
- **PRSE:** Development of a new Adhesion Machine for the automotive field
- **CURTI Costruzioni Meccaniche:** Development of a new camera installation for wiring machinery
- **CURTI Costruzioni Meccaniche:** Development of a new laser section cut for wiring machinery



# Project Phases Analysis

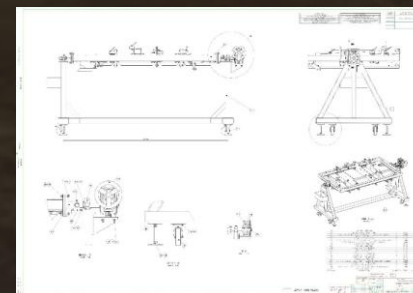
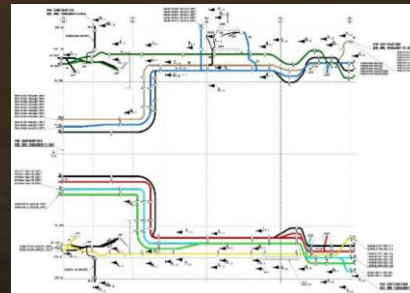
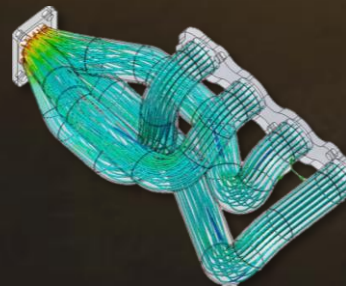
The company excels in analyzing and **optimizing all phases of project development**. Beyond component development, it focuses on key aspects such as fiber composite optimization, stress analysis, and assembly animation. By integrating these elements, the company **enhances** both the **performance of individual components and the overall production process**, ensuring greater **efficiency** and **reliability** throughout each project phase.

## PRELIMINARY STUDIES

- First Weight & Cost Analysis Lay out definitions
- ICD's definitions trade study
- Preliminary Definition earnings and costs configuration
- Definition Step & Gap Analysis
- CFD Analysis

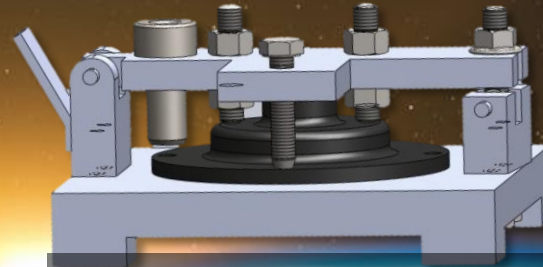
## DETAIL DESIGN PHASE

- Project Reviews «PDR's CDR's» preparation & discussions problem solving & iteration with other partners Clashes
- Clearances & Tolerances analysis 3D & Surfaces definition ICD's final definition
- Daily and weekly phone calls and face to face reviews
- 2D Drawings for single parts & assemblies
- Detail Weight & Cost Analysis
- Configuration Management
- Bill of Material

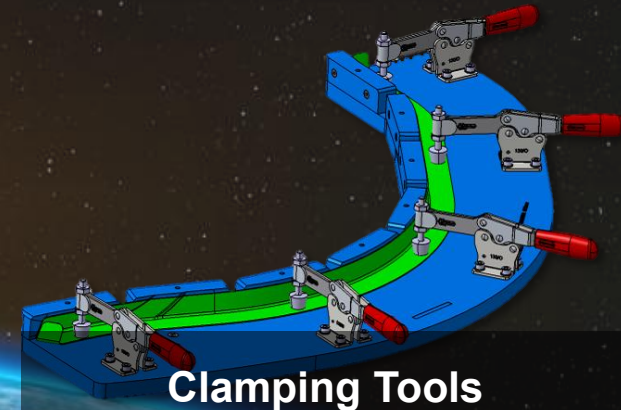




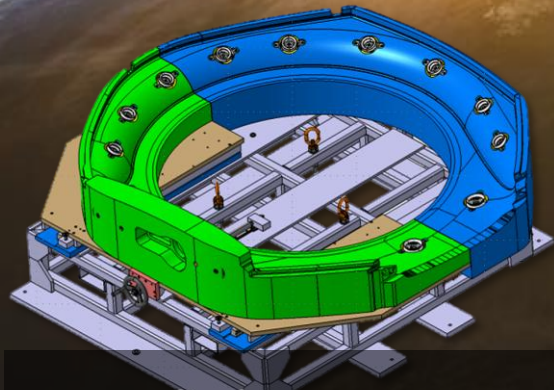
**Lamination tool & Master Models for composite structures (Steel, Invar, CFRP)**



**Drilling Fixture**



**Clamping Tools**



**CNC Fixture**

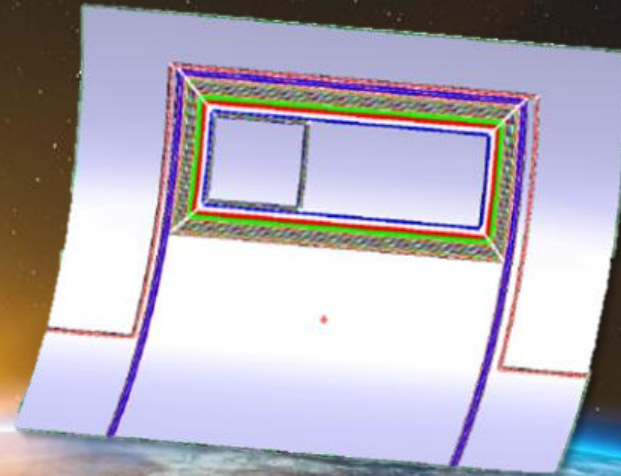


**Assembly Jigs**

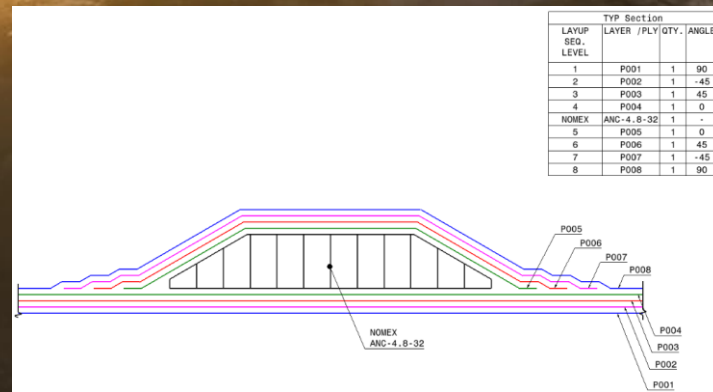
Structure & Lay Up definition, solid laminate structures, stacking preparation, sandwich structures

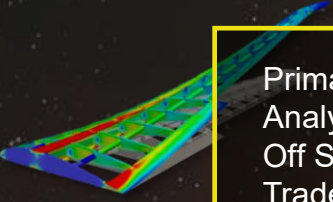
Drop off management and definition, Iso thickness areas definition, top Surface creation, interfaces analysis

Fiber placement constrains knowledge, manufacturing sustaining, 2D Drawings creation, solid creation, ply table definition

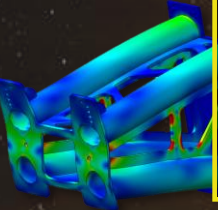



Layer	Material	Quantity	Angle
1	P001	1	90
2	P002	1	-45
3	P003	1	45
4	P004	1	0
NOMEX ANG-4-B-32 1 -			
5	P005	1	0
6	P006	1	45
7	P007	1	-45
8	P008	1	90

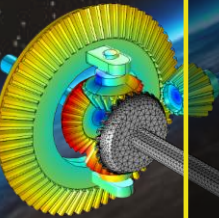




Primary & Secondary Structural Analysis, Method Definition, Trade Off Studies, FEM Modelling & Trade Study



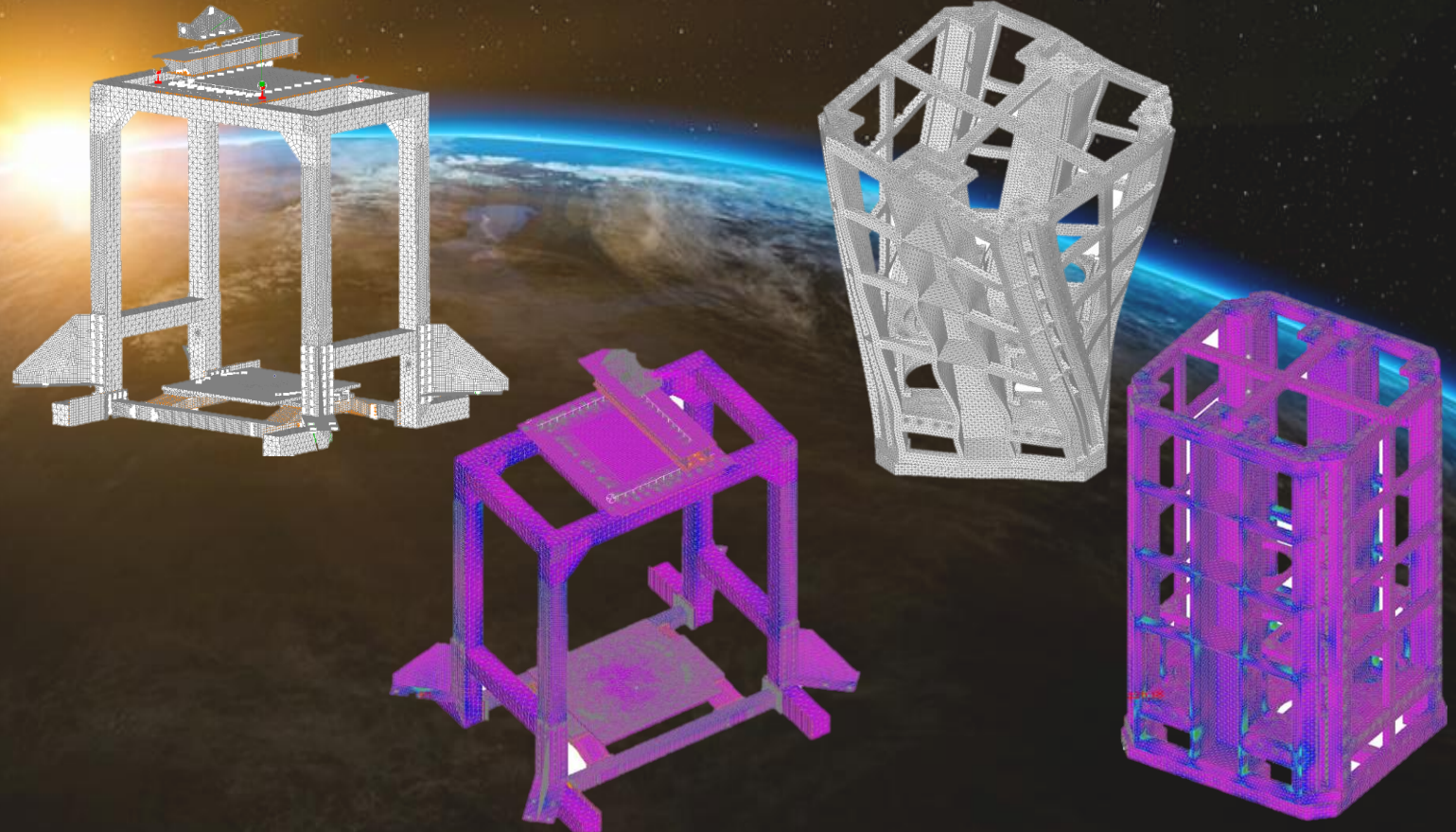
Composite/Metallic/Hybrid Analysis, Justification & Certification Phase, Sizing & Optimization Phase, Analytical Approach



Support to Manufacturing (Concessions, Time & Methods, Workable Phase Sheet Preparation), Justification & Certification Reports, Weight & Cost Saving, Integration definition

## Applied method

The analysis involves applying boundary conditions and load cases to the structure based on its functional requirements, to assess stress distribution and validate the structural integrity under operational conditions.



From traditional assembly line to smart manufacturing. Assembly animation lets you quickly create and update high-quality product materials such as documentation, technical illustrations, animations, and interactive 3D content using existing 3D design data. Assembly animation delivers clearer and more understandable information for both stakeholders and manufacturing operators by enhancing their grasp of complex details. Additionally, assembly animation enables earlier creation of product materials in the design process, speeding up time to market and reducing costs from rework.



- 2D Drawings
- 3D Models
- Product manuals
- Prototypes



- Assembly expertise
- Safety procedures
- On-site assessment
- Manufacture workflow



- Dynamic
- Flexible
- Intuitive
- Detailed



- Merge and optimize assembly information to improve workflow
- Reduces assembly time and mistakes

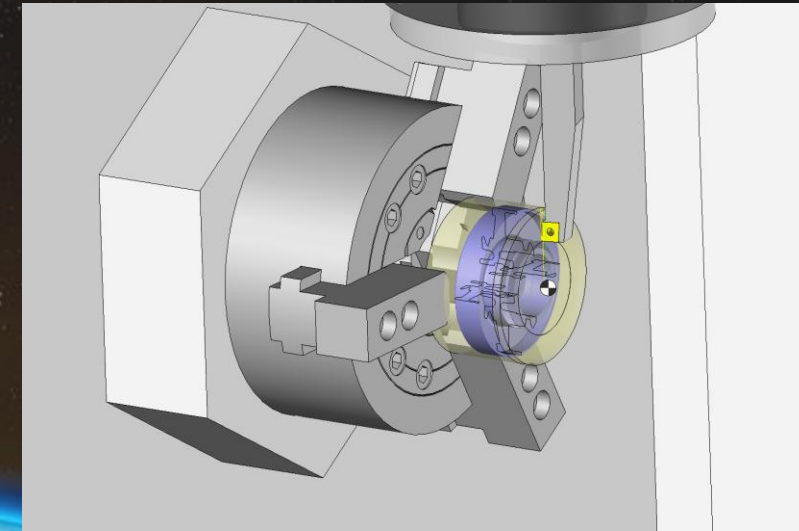
## Technical Publication

Creating technology documentation is challenging. Your content needs to be engaging and clear while also being precise and reliable.

Technical publications are helpful documents in the aeronautic industry, providing detailed assembly instructions and technical data to mechanics and technicians. These publications are designed to guide professionals in solving problems and fixing issues directly at the airport.

## CAM - Computer -aided Manufacturing

CAM enables precise design-to-production workflows by converting digital models into instructions for manufacturing equipment. This technology improves efficiency, accuracy, and consistency in production while minimizing human error. By streamlining operations and reducing setup time, CAM helps manufacturers achieve faster production cycles, better quality control, and increased flexibility in handling complex designs or small-batch production runs.



## Manufacturing cycles

Manufacturing cycles encompass all the steps and activities involved in transforming raw materials into finished goods. By defining these cycles, production companies and workers gain a clearer understanding of the product and its requirements, leading to reduced production time, optimized processes, and minimized errors.

## FAI - First Article Inspection

The FAI is a production validation process used to confirm that a new or modified manufacturing process produces parts that conform to the specifications outlined in technical or engineering drawings. All collected data from the inspection is compiled into a report called the First Article Inspection Report (FAIR), which includes detailed information about the validation process and dimensional checks. It aims to keep control over the production quality.



*Our company aim to find the best solution based on each client need to have the best possible response.*

## CE Certifications

We provide expert consulting services to support companies in aligning their systems, products, or projects with applicable European Union regulations and directives, enabling successful CE certification.



## Compliance Projects with Adaptation Solutions

Our services cover the full compliance journey, from regulatory analysis and gap assessment to technical documentation, risk analysis, and conformity evaluation. We work closely with clients to interpret complex EU requirements, identify applicable standards, and implement effective solutions that ensure safety, performance, and regulatory compliance.

- 1) Electromagnetic Compatibility (EMC/E3)**
  - MIL-STD-464C – System-level E3 requirements
  - IEC/EN 61000-6-2 – Generic EMC immunity standard for industrial environments
- 2) Electrical / Product Safety**
  - IEC/EN 61010-1 – Safety requirements for electrical equipment for measurement, control, and laboratory use
- 3) EU Regulatory Framework for CE Marking**
  - EMC Directive 2014/30/EU – Electromagnetic compatibility
  - Low Voltage Directive 2014/35/EU (LVD) – Electrical safety (often applied in conjunction with EN 61010-1 and EN 60825-1)
- 4) MIL-STD-810 (latest revisions H/G) – Environmental test methods**
  - Verification of operational and environmental conditions over the system life cycle
  - Theoretical verification and documentation review, analysis, and definition of criteria for design adaptation in accordance with the methods specified in the standard
- 5) IEC 60529 (IP Code) – Degrees of protection against dust and liquids**
  - Verification of enclosure protection and resistance

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## Electrical & Electronic Design Compliance

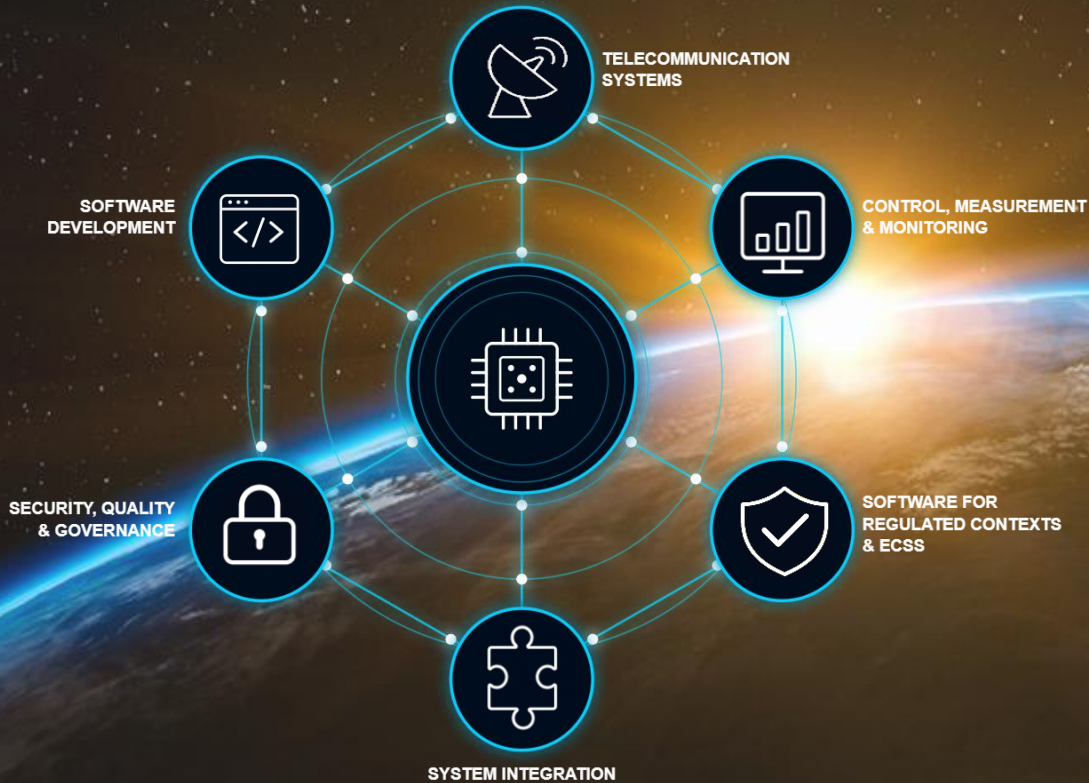
Electrical and electronic design verification to ensure EMC performance, immunity, and electrical safety compliance with applicable standards and regulatory requirements.

(electrical schematics, control panels, control systems)

- Coordination of Software development for **CRM and CTI systems**
  - Design and supervision of **control, monitoring, and automation systems**, including integration with IoT devices and data acquisition systems
  - Definition of solution architectures **for operational process control** and information flow management
  - Programming: C/C++, C#, Visual Basic
  - Hardware/software integration for **industrial and telecommunications systems**
  - Technical analysis, feasibility studies, and support for **prototype development**
- *Electrical and electronic design (core scope)*
  - *Theoretical verification of filters, cabling, and shielding for conducted emissions*
  - *Verification of shielding, PCB layout, and component placement for radiated emissions*
  - *Theoretical analysis of protection against conducted disturbances on power supply lines*
  - *Analysis of shielding and PCB layout for immunity to radiated electromagnetic fields*
  - *Verification of TVS protections, grounding paths, and barriers for electrostatic discharge (ESD)*
  - *Design verification for immunity to electromagnetic pulses (layout, filters, shielding)*
  - *Verification of grounding continuity and grounding strategy*
  - *Theoretical analysis of protection against lightning-induced overvoltages*
  - *Documentary verification of ESD protections on I/O lines*
  - *Theoretical analysis of shielding and PCB layout for radiated RF fields*
  - *Verification of protections on power supply and I/O lines*
  - *Verification of MOV/TVS protections and filters*
  - *Verification of filters, layout, and signal/power cable separation*
  - *Design verification against magnetic interference*
  - *Design verification for operation under voltage dips and interruptions*
  - *Verification of clearance and creepage distances according to overvoltage category*
  - *Theoretical analysis for dielectric withstand tests*
  - *Verification of barriers, enclosure, earthing, and protective measures*
  - *Verification of maximum component and surface temperatures*
  - *Verification of conductor fastening, mechanical protection, and screw tightening*
  - *Verification of insulating materials and critical fuses*
  - *Verification of labels, symbols, and warnings*
  - *Availability of the EMC technical file*
  - *Use of harmonized standards to demonstrate conformity*
  - *Applicability for rated voltages 50–1000 Vac / 75–1500 Vdc*

*Our company aim to find the best solution based on each client need to have the best possible response.*

We combine multidisciplinary technical expertise, system vision and an integrative approach to deliver **reliable**, **scalable** and **high-performance** solutions.



## TELECOMMUNICATION SYSTEMS

VoIP, IP networks, CTI integration, contact center platforms and scalable communication architectures.



## CONTROL, MEASUREMENT & MONITORING

Remote monitoring, IoT solutions, data acquisition and process control with dashboards and supervision tools.



## SOFTWARE DEVELOPMENT

Web and enterprise applications, CRM, workflow, automation and system integrations through APIs and connectors.



## SOFTWARE FOR REGULATED CONTEXTS & ECSS

Requirements traceability, V&V approach, structured documentation and lifecycle management for critical systems



## SYSTEM INTEGRATION

Interoperability between devices, networks, applications and processes for complete and efficient solutions.



## SECURITY, QUALITY & GOVERNANCE

Cybersecurity, GDPR compliance, risk management, operational continuity and process governance.

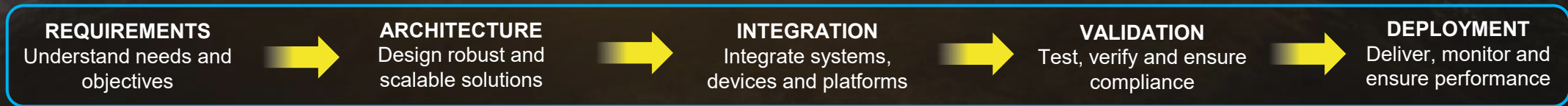


From requirements to commissioning: integrated solutions that are **reliable**, **secure**, **compliant** and **built to last**

A structured engineering approach that transforms complex requirements into **reliable**, **secure** and **future-ready** solutions



## OUR ENGINEERING FLOW



From requirements to commissioning: integrated solutions that are **reliable**, **secure**, **compliant** and **built to last**

<b>RELIABLE</b>	<b>SECURE</b>	<b>COMPLIANT</b>	<b>BUILT TO LAST</b>
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# Tools and Methods

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The company uses **advanced tools** like parametric CAD, FEM, and CFD software to develop precise and reliable projects. It prioritizes **quality through certifications** and employs **skills management** tools to **optimize team capabilities**, ensuring efficient and expert project execution.

Primary Softwares. Different solutions will be evaluated case by case.

## DESIGN

### CATIA V5

- 3D Surfaces & Advanced Surfaces
- 2D Drawings single parts
- 2D Drawings Assembly
- 3D Assembly & HMF
- Electrical Drawings
- Electrical Installations
- 3D Sheetmetal
- 3D Modelling
- 3D FTA

### CATIA V5 Special Toolings

- CPD for Composite
- Kinematic
- Electrical Harness
- Piping
- DMU
- Catia composer

### ADDITIONAL ACTIVITIES

- Creation and insertion/integration of work cycles
- Creation and insertion/integration of data for CNC controlled machine tools
- Lay-out creation

### ADDITIONAL SW

- NX Siemens
- SolidWorks
- PTC Creo
- Fibersim

## STRESS ANALYSIS

### NASTRAN

- Fatigue & Damage Tolerance Analysis
- Linear & Non-Linear Analysis
- Finite Element Analysis
- Composite Analysis
- Vibration Analysis
- Buckling Analysis
- Thermal Analysis

### PATRAN

- Composite Laminate Modelling
- Linear & Non-Linear Modelling
- FEM Integration & Multi Body
- Advanced Geometry
- Basic Durability
- FEM Creation

### ADDITIONAL SW

- CFD Analysis
- LS – Dyna
- Femap
- Ansys

CAM – FAI – Manufacturing Cycle - Technical Publication



## Quality certification for ISO 9001 ISO 9100

- Quality Review Meeting (QM)
- WP Internal Operations Meeting
- Planning Definition & Monitoring
- Brainstorming & Drumbeat meetings
- R&D Innovation Team
- KPI Constant Monitoring (OTD & FTR)

PLYFORM  
COMPOSITES



CURTI  
AEROSPACE



Technodata

RECARO



AXALP  
TECHNOLOGIES



SITAEL



DEUTSCHE AIRCRAFT

SSTN  
FLUGTECHNIK

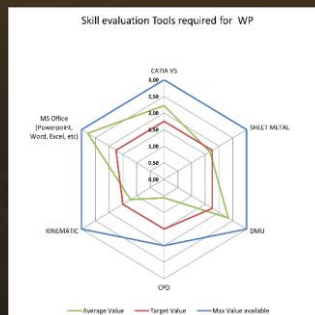
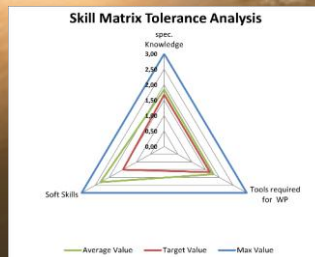
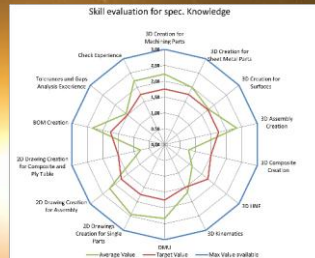
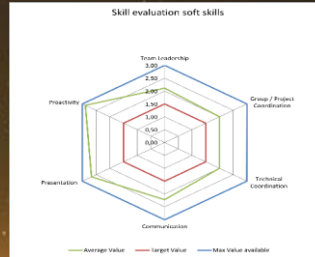


# Clients

Project Name:		DESIGN Project Team														
Company Name:		Target	Max available	Average	1	2	3	4	5	6	7	8	9	10	10	
Technical Description					ASTABDS001	ASTABDS003	ASTABDS004	ASTABDS009	ASTABDS027	ASTABDS028	ASTABDS029	ASTABDS019	SIMONE	Designer 10	Designer 11	Designer 12
Legend:		Skill level according legend														
(0) -> No Experience																
(1) -> Basic (able to perform with supervision)																
(2) -> Competent (able to perform work individually)																
(3) -> Expert (able to train people)																
spec. Know How	3D Creation for Machining Parts	1,8	3,0	2,2	3	3	3	1	2	2	3	2	1			
	3D Creation for Sheet Metal Parts	1,8	3,0	2,0	3	3	3	2	1	1	2	2	1			
	3D Creation for Surfaces	1,8	3,0	1,8	3	3	3	1	1	1	1	2	1			
	3D Assembly Creation	1,8	3,0	2,3	3	3	3	2	2	2	2	2	2			
	3D Composite Creation	1,5	3,0	0,8	2	2	2	1	0	0	0	0	0			
	3D HNF	1,8	3,0	1,1	2	2	2	1	0	1	1	1	0			
	3D Kinematics	1,5	3,0	1,7	2	2	2	1	1	1	3	2	1			
	DMU	1,8	3,0	2,3	3	2	3	2	2	2	3	2	2			
	2D Drawings Creation for Single Parts	1,8	3,0	2,4	3	3	3	3	2	2	2	2	2			
	2D Drawing Creation for Assembly	1,8	3,0	2,2	3	3	3	2	2	2	2	2	1			
2D Drawing Creation for Composite and Ply Table	1,5	3,0	0,8	2	2	2	1	0	0	0	0	0				
BOM Creation	1,8	3,0	2,3	3	3	3	2	2	2	2	2	2				
Tolerances and Gaps Analysis Experience	1,5	3,0	1,6	2	2	2	2	1	1	2	2	0				
Check Experience	1,8	3,0	2,2	3	3	3	2	1	2	2	2	2				
Tools required	CATIA V5	1,8	3,0	2,2	3	3	3	1	2	2	2	3	1			
	SHEET METAL	1,8	3,0	1,7	3	2	2	1	1	2	1	2	1			
	DMU	1,8	3,0	2,3	3	3	3	1	2	2	3	2	2			
	CPD	1,5	2,0	0,6	2	1	1	1	0	0	0	0	0			
Soft Skills	KINEMATIC	1,5	3,0	1,2	1	2	2	1	0	0	3	1	1			
	MS Office (Powerpoint, Word, Excel, etc)	1,8	3,0	2,8	2	3	3	3	3	3	3	3	3			
	Team Leadership	1,5	3,0	2,1	2	3	3	2	1	2	2	2	2			
	Group / Project Coordination	1,5	3,0	2,0	2	2	3	1	2	2	2	2	2			
	Technical Coordination	1,5	3,0	2,0	2	2	3	1	2	2	2	2	2			
Communication	1,5	3,0	2,2	1	2	2	2	3	2	3	2	3				
Presentation	1,5	3,0	2,7	2	3	3	2	3	3	3	2	3				
Proactivity	1,5	3,0	2,9	3	3	3	3	3	3	3	2	3				
					2,42	2,50	2,82	1,82	1,50	1,82	2,00	1,73	1,46	####	####	####

Methods/ Materials  
spec. Knowledge  
Tools required for WP  
further Tools  
Soft Skills

Value between 2 to 3  
Value between 1 to 2  
Value between 0 to 1



- Evaluation, development and optimal use of resources in projects
- Skill matrix evaluation
- Regular skill update
- Sessions of dedicated trainings constantly in progress

## ASTAB ENGINEERING S.r.l.

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### Locations

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