

Company Expertise
Aerospace & Defense



EXPERTS IN MECHANICS



SOPHIAHIGHTECH.COM

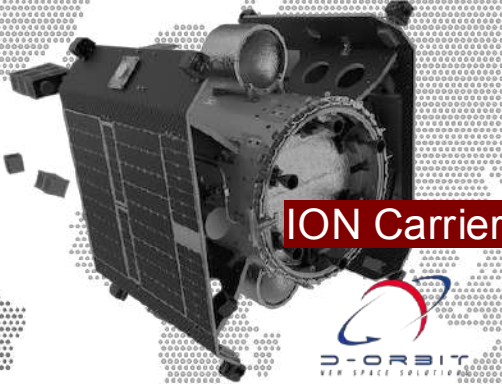
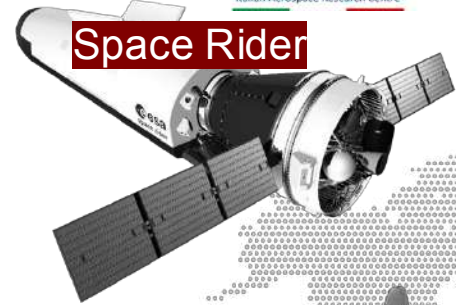
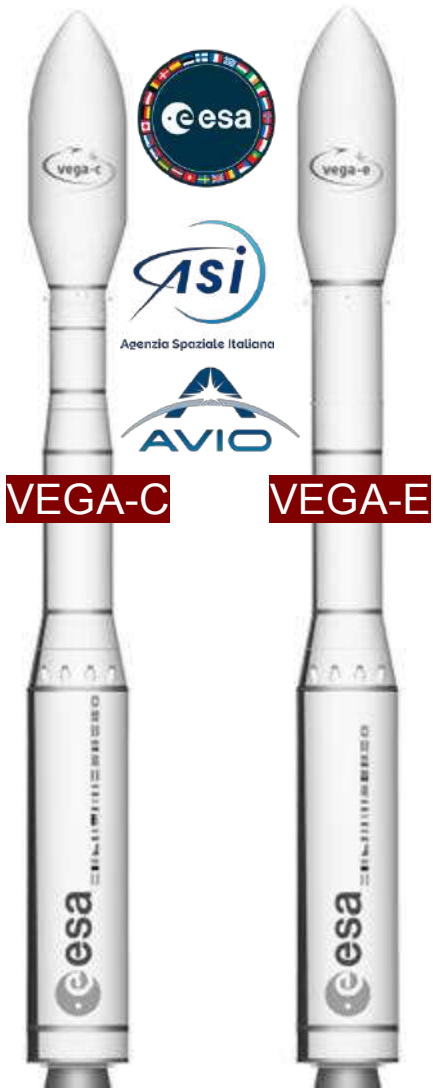
Thursday, August 8, 2024

**** Aerospace & Defense ****





Customers & Programs





Facility List



**Multitasking Machine,
Lathe/ 5-Axis**
MULTUS B250II OKUMA
Max Cutting | D600 mm x 750 mm
Max Rating | 22,4 kW
Vector Drive | 20,000 rpm



5-Axis CNC MILLING
UMC-750SS HAAS
Max Cutting | 768x508x508 mm3
Max Rating | 22,4 kW
Vector Drive | 15,000 rpm



5-Axis CNC MILLING
UMC-500SS HAAS
Max Cutting | 508x508x508 mm3
Max Rating | 22,4 kW
Vector Drive | 15,000 rpm



5-Axis CNC MILLING
KREOS400 - FAGIMA
Max Cutting | 4000x800x1000 mm3
Max Rating | 22,4 kW
Vector Drive | 16,000 rpm



4-Axis CNC MILLING
VF-4SS HAAS
Max Cutting | 1270x508x635 mm3
Max Rating | 22,4 kW
Vector Drive | 12,000 rpm



CNC TURNING
ST-30 HAAS
Max Cutting: 533 x 660 (d,z)
Max Rating: 22,4 kW
Vector Drive | 12,000 rpm



Wire EDM
FANUC Robocut alba-1B
Max Cutting: 300 x 300 x 540
Moving: CNC



**QUALITY CONTROL &
REVERSE ENGINEERING**
7520 Laser Romer Arm HEXAGON
In air conditioned room
Max Dimension | 1800 mm (x,y,z)
Resolution | 752.000 points/sec



**QUALITY CONTROL &
REVERSE ENGINEERING**
CMM GLOBAL S HEXAGON
In air conditioned room
Max Dimension | 900x1500x800 mm3
Max 3D speed | 510 mm/s
Max 3D acceleration | 1700 mm/s²



UPS System
GALAXY VL 200KVA
Autonomy until 100 kW



SELECTIVE LASER MELTING
TruPrint 3000 - TRUMPF
Working Material | Metal alloys
Working volume | D300mm x H400mm
Cusing laser | Fibre laser 500 W



SELECTIVE LASER MELTING
TruPrint 2000 - TRUMPF
Working Material | Metal alloys
Working volume | LxW 200mm x H200mm
Cusing laser | Fibre laser 500 W [DOUBLE LASER]



SELECTIVE LASER MELTING
M2 Concept Laser
Working Material | Metal alloys
Working volume | 250x250x350 mm3
Cusing laser | Fibre laser 400 W



SELECTIVE LASER MELTING
M2 Concept Laser
Working Material | Metal alloys
Working volume | 250x250x350 mm3
Cusing laser | Fibre laser 400 W



Depowdering
SEM-AT350
Working Material | Metal alloys
Working volume | 500 x 280 x 400 mm3
Inert gas infusion for Reactive Materials (ATEX)



HEAT TREATMENT
NABERTHERM FURNACE
Max Volume | 450xe | 1280°C
+ tem450x350 mm3
Max. Temperaturperature uniformity
+ Motorized exhaust air flaps
+ Nitrogen environment

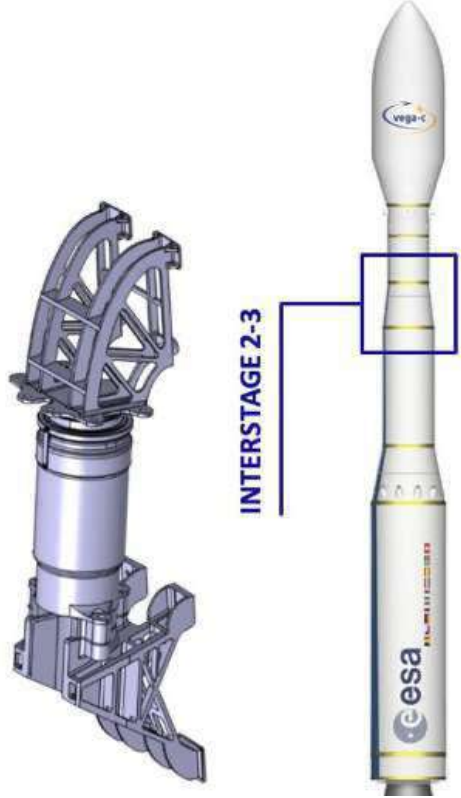


Celebrating 10 years | SOPHIA



https://youtu.be/5d3aZgFoE6M?si=UczyyEcsDB_Tg1tB





VEGA-C

**** Spring Assy ****

<https://www.youtube.com/watch?v=VooFSDEtKUs>

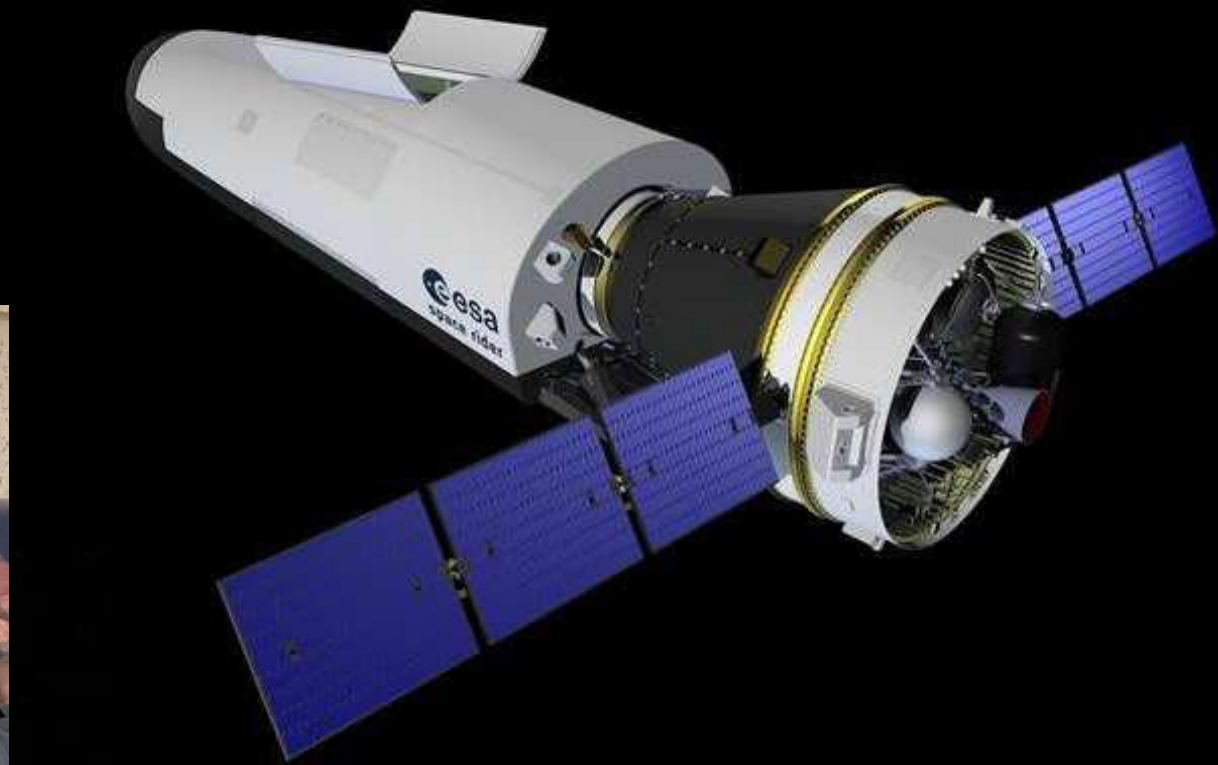


SPACE RIDER

**** NOSE & WINDWARD Assy ****



<https://www.youtube.com/watch?v=uzAwE9TtlSU>





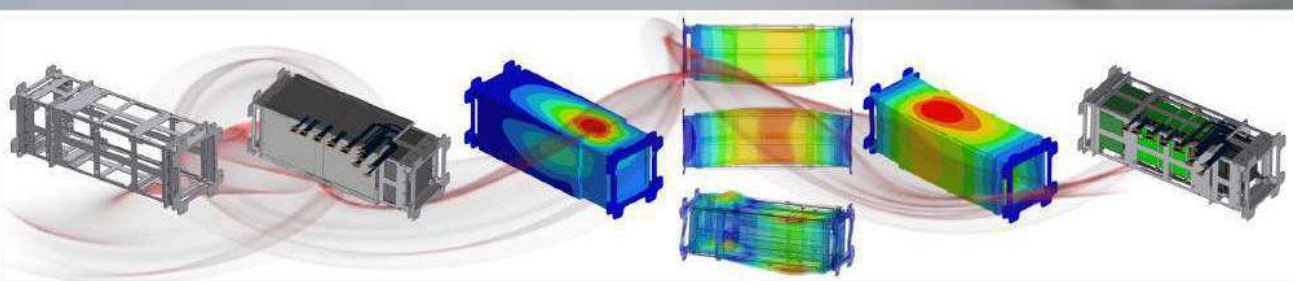
ION SATELLITE CARRIER

**** All Mechanical P/Ns ****



https://www.youtube.com/watch?v=st_8KziRiNo

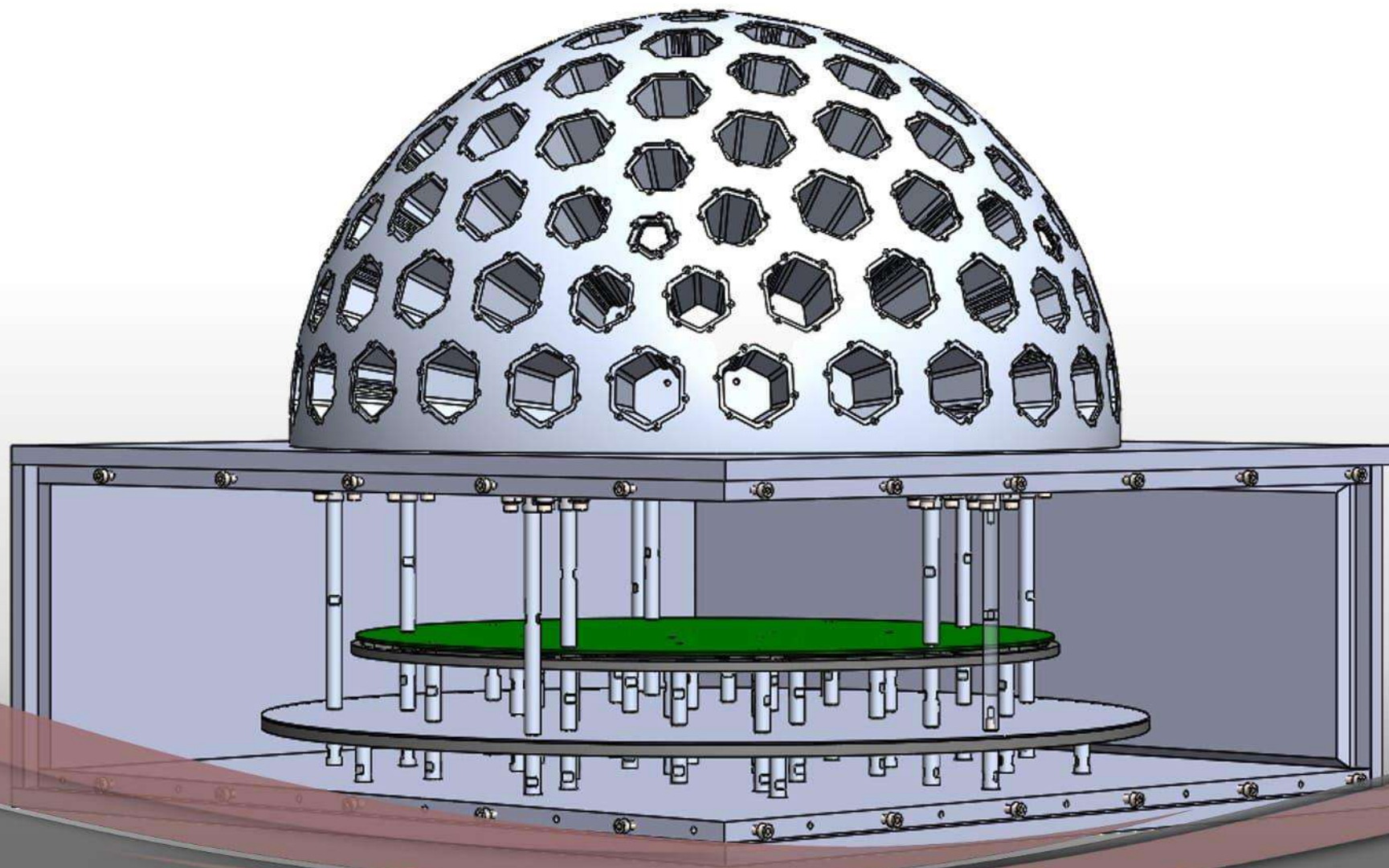




ZIRÈ Satellite

**** Design - Manufacturing - Assembly - Integration & Qualification ****





CRYSTAL EYE

SATELLITE

ADDITIVE MANUFACTURING



Thursday, October 12, 2023

SOPHIA HIGH TECH® Copyright



ECSS-Q-ST-70-80C: ECSS AREA LAYOUT





ECSS-Q-ST-70-80C: QUALIFIED COMPONENTS

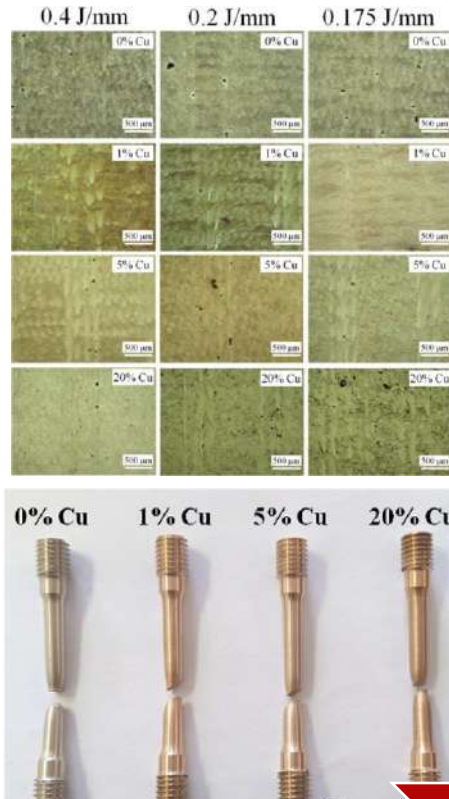


POWMIX R&D Project [Powder Mixing + SLM + Machining]



Powder Mixing
new material

SLM
samples



Testing
material validation



Optimization
industrial scale



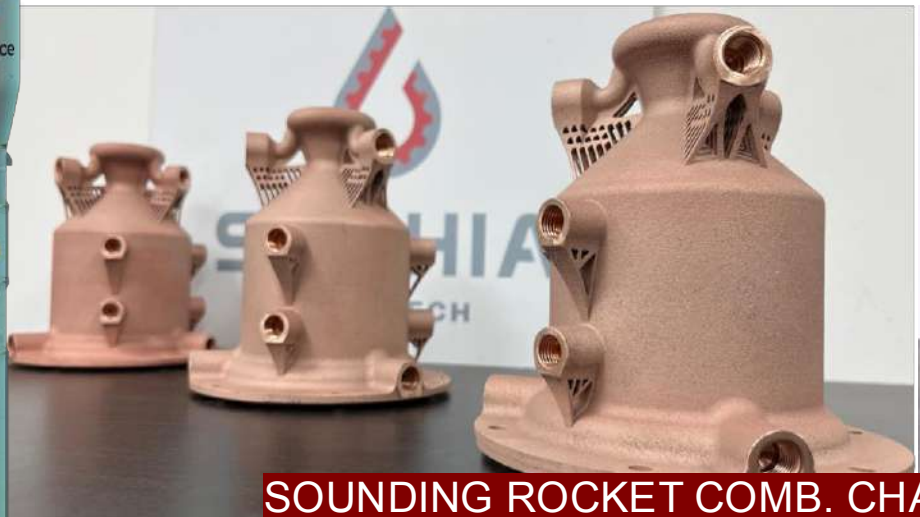
SLM + CNC
Aerospace Part



** Space Parts in Additive Manufacturing



VEGA-E COMBUSTION CHAMBER



SOUNDING ROCKET COMB. CHAMBER



VEGA-E FUEL NOZZLE



VEGA-C LINER



<https://youtu.be/-8RS7LQueAk?si=MHj77a6H0lwaf2ca>



AEROSPACE MANUFACTURING



PNRR: **AVIO** assegna a **SOPHIA** le attività di supporto per lo Sviluppo, la Realizzazione ed integrazione dell'Innovativo Motore MPGE.



CONTESTO

In-Orbit Economy | In Orbit services. Linea M1C2.I4 del PNRR-FC
Attività di ricerca, sviluppo tecnologico e produzione concernente il design, lo sviluppo e la qualifica di un motore green multi-purpose per applicazioni orbitali e sub-orbitali [IOS, VEGA-C, VEGA-E e Space Rider].

Nel Contratto dell'**AGENZIA SPAZIALE ITALIANA [ASI]** n. 2023-8-I.o, cui la **AVIO SpA** è affidataria, **SÒPHIA HIGH TECH** è stata scelta dalla AVIO SpA per l'attività di supporto alla progettazione, produzione, assemblaggio, integrazione e Testing di ITEM del Motore MPGE. Il progetto concluderà lo sviluppo entro il primo semestre del 2026, in accordo con gli obiettivi del PNRR. Una prima versione del motore verrà predisposta entro la fine del 2024 per le applicazioni specifiche nell'ambito del trasporto spaziale.

OBIETTIVI

SÒPHIA è responsabile della Produzione e del Controllo dei seguenti ITEM:

Thermal Control System | *Combustion Chamber* | *Nozzle Extension* | *Injection Section* | *Piping*



SPACE THRUSTER



AS/EN 9100 QMS



TULPS License



ECSS-Q-ST-70-80C

ADDITIVE
MANUFACTURING

SOPHIA



SPACE TEAM

Thank You!



SÒPHIA HIGH TECH S.R.L.

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