

Space Technologies,  
Advanced Manufacturing  
and Engineering Services  
Solutions provider

At AQST, we want to invite you to be part of our vision and philosophy about how we are changing the world of manufacturing based on our equation:

Technology + Collaboration =  
Innovation

We provide to our clients and partners, Adaptive Cyber-Physical Manufacturing Systems (ACPMS), space manufacturing and advanced engineering and materials development services to supply highly flexible, individualize and resource friendly mass production services to the Aerospace, Space and Defense, healthcare and any advanced engineering industries. In a collaborative open platform model.

Our open platform business design, supported by our exclusive On-Demand services offers, provides to any existing company, as well as start-ups and visionaries, no matter how advanced or mature the idea or business is, with the tools to create the technologies, businesses, products, and services for the future of humankind. On our planet, in orbit and beyond.

AEROSPACE TOP 10  
& DEFENSE REVIEW  
**SPACE TECH**  
SOLUTION PROVIDERS - 2020

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# AQST USA



*Innovating the present when designing the future*

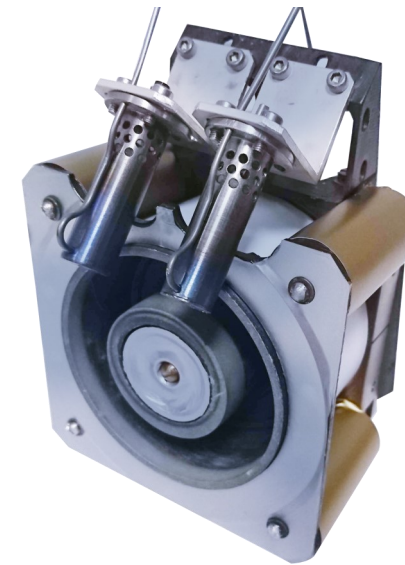
Manufacturing, Engineering services and advanced materials solutions provider

# Space Technology at work

## SPACE AS A SERVICE

Our proprietary portfolio of technologies includes our QUANTUM X1000, a "smallsat" platform for GEO communications, including Optical. A family of high-efficient Hall Effect Electric Thrusters (HEET) for satellites and spacecraft. QX-300, which is a multi-purpose, autonomous spaceplane. ESA qualified planetary rovers and robotic arms. And our unique new all-in-one solution for cyber-physical advanced manufacturing On-Demand services

Our customized solutions, proprietary technologies, and tools are scalable and flexible at affordable costs without compromising quality, performance, and endurance. They are designed to be accessible from an individual to the largest companies in the world. We want more companies to take advantage to develop their businesses in space and accelerate the transition from discrete manufacturing to Manufacturing 4.0 for the benefit of consumers and companies.



## MARKETS WE SERVED

- ◆ SPACE & DEFENSE
- ◆ AEROSPACE
- ◆ AGRICULTURE
- ◆ HEALTHCARE
- ◆ PHARMA
- ◆ MEDICAL DEVICES
- ◆ TRANSPORTATION
- ◆ OIL & GAS
- ◆ UTILITIES
- ◆ RENEWABLE ENERGY
- ◆ RETAIL
- ◆ LAUNCH VEHICLES



# flexible solutions for your business needs

## ADVANCED ENGINEERING SERVICES

AQST offers to our customers and partners a global network of scientists and engineers to design anything your product, idea, or business needs. From a single part to a spacecraft, satellite, or planetary lander, or propulsion system, to an underwater vehicle, ship, or autonomous aircraft; our high-skilled, experienced team of scientists and engineers with over 20 years of experience each can offer a complete suite of engineering consultancy and design services.

## EFFECTIVE AND COST AFFORDABLE ADVANCED MANUFACTURING AND AEROSPACE SOLUTIONS

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## AT AQST, WE DEVELOP SPACE SOLUTIONS TO IMPROVE YOUR DAILY LIFE

### AMODS®

AQST provides unique cloud-based collaborative cyber-physical solutions for companies or individuals who want



or need to take advantage of advanced manufacturing On-Demand 4.0. We combine metal and plastics 3D printing technologies, development of new graphenated and composite materials, advanced engineering services, manufacturing processes, quality control, test-

ing, and logistics to provide full on-demand manufacturing solutions.



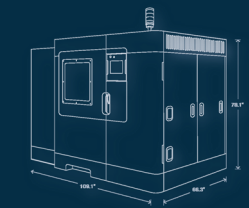
## CUSTOM SOLUTIONS

At AQST USA we believe that one-size fits all approach for complex projects it's not the best and most efficient approach. Reason why we provides custom solutions for all your challenges and based on your budget. From design optimization for 3D printing to a full mission to put a satellite in orbit or a spacecraft in another planet, AQTS USA will provide an effective solution.



## ON-DEMAND SOLUTIONS

AMODS® it is an On-Demand services platform that provides you with direct access to our farm of 3D printers in our facilities. No matter what your product is, we will charge you only for the cost by the hour of 3D printer utilization including materials. Other On-Site solutions for our customers are available. Please, ask us if you think that solution better works for you



## NEW MATERIALS DEVELOPMENT

We can provide you r technology, business or idea with the right materials to make them more efficient, improve performance, strength, etc. From graphenated materials to new composites we can help and support you with your most challenging projects.



# AMODS©- Advanced Manufacturing On Demand Services

## MANUFACTURING AS A SERVICE

### AMODS©

AQST provides unique cloud-based collaborative cyber-physical solutions for companies or individuals who want or need to take advantage of advanced manufacturing 4.0. We combine 3D printing technologies, development of new graphene and composite materials, advanced engineering services, manufacturing processes, quality control, testing, and logistics to provide full on-demand manufacturing solutions.

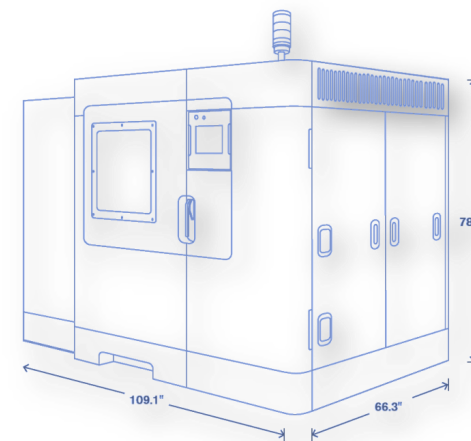


## MARKETS WE SERVED

- ◆ SPACE & DEFENSE
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- ◆ AGRICULTURE
- ◆ HEALTHCARE
- ◆ PHARMA
- ◆ MEDICAL DEVICES
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- ◆ OIL & GAS
- ◆ UTILITIES
- ◆ RENEWABLE ENERGY
- ◆ RETAIL
- ◆ LAUNCH VEHICLES

## flexible solutions for your manufacturing needs

## ADVANCED ENGINEERING SERVICES TECHNOLOGIES AND NEW MATERIALS DEVELOPMENT

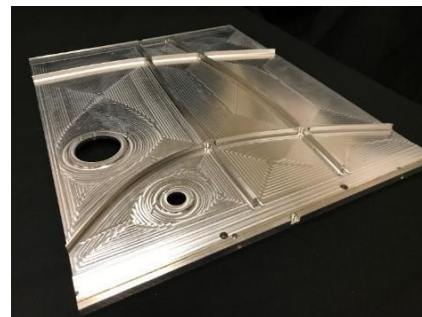


### ADVANCED ENGINEERING SERVICES

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### ADVANCED MATERIALS DEVELOPMENT

AQST with our partners provides to our customers from any manufacturing industries, access to develop specific materials to solve their most challenging engineering situations related to materials. From healthcare to Utilities, to Aerospace & Defense, to Automotive or Semiconductors industries, and many others, we provide materials and coatings to help you design the next generation of your products and solutions.



### CUSTOM SOLUTIONS

AMODS© is a cloud based On-Demand services solutions. But we provide On-Site modular solutions for companies who preferred all their manufacturing processes under the same manufacturing building. If that is your preference ask us about our modular On-Site solutions.



### ON-DEMAND SOLUTIONS

All AQST USA services are customizable and On-Demand. We can help you with our engineering team develop, optimize it to be 3D printable, and improve your idea using new composites and graphene materials. Ask us about our engineering holistic solutions.



### NEW MATERIALS DEVELOPMENT

We can provide you r technology, business or idea with the right materials to make them more efficient, improve performance, strength, etc. From graphenated materials to new composites we can help and support you with your most challenging projects.



# Space Propulsion Systems

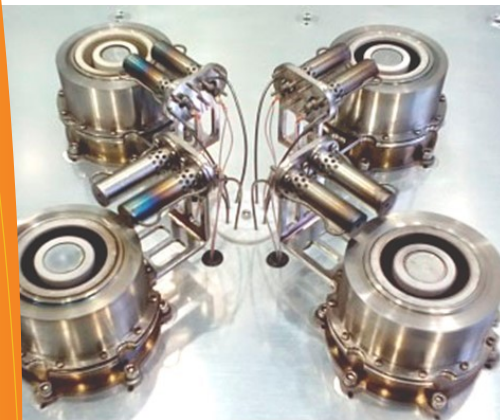
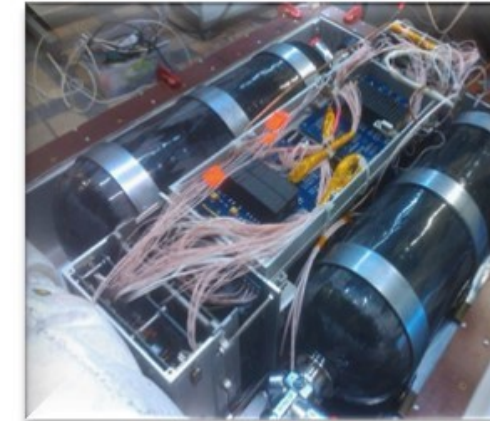
CONNECTING YOUR BUSINESS TO THE TECHNOLOGY RESOURCES YOU NEED

## HEET- HALL EFFECT ELECTRIC THRUSTERS

The Hall-effect Thrusters (Magnetic-layer type or Stationary) generate thrust as a result of the accelerating of ionized propellant gas over magnetic and electrostatic fields. AQST with our partners develops and manufactures Hall thrusters with thrust levels between 2...100mN. (Other custom systems could be manufac-

## EPS- ELECTRIC PROPULSION SYSTEMS

AQST and his partners have vast experience designing and building complete Propulsion Systems using clustered configurations of the thrusters, our design PPU, cathodes, tanks, and other components. Many of our EPS solutions have space heritage.



### PROPULSION SYSTEMS TYPES FOR SATELLITES AND SPACECRAFT

- ◆ ELECTRIC
- ◆ CHEMICAL

### PROPULSION SYSTEMS TYPES FOR LAUNCH VEHICLES

- ◆ CHEMICAL



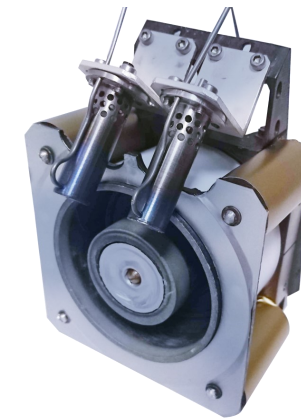
## PROPELLANT TANKS

AQST provides multiple types of propellant tanks for spacecraft of any kind and purpose. We customized the tanks to offer to our clients a more substantial room of flexibility to design and accommodate more effective-payload, instruments, and auxiliary equipment, making your mission more profitable.

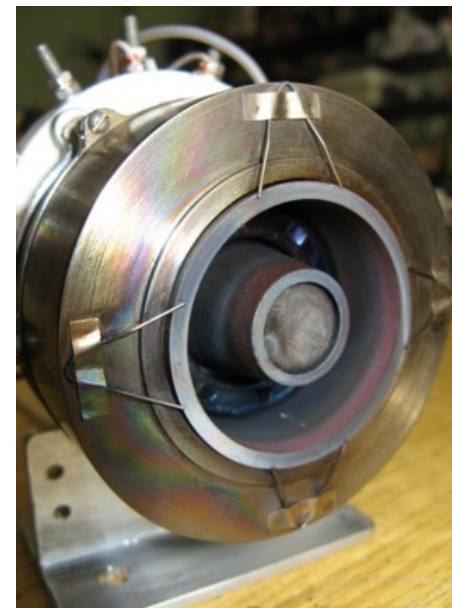
## CATHODES

Our Cesium cathodes are not affected by air or wet contamination, providing a fast and straightforward solution to work with them. They don't require high purity (99.9999%) of propellant gas, lowering the costs of operation. Also, it doesn't require special storage conditions, reducing and simplifying storage costs, and operations. The HCC-3 version was successfully tested on satellites in space.

AQST has also developed a cathode to be used with Iodine..



PIT-45



PIT-45 it's our most refined electric propulsion system. It was tested in space with high reliability, performance, and life span. AQST Plasma Ion Thruster or "PIT" systems are perfect for stationary orbits communication satellites and deep-space missions to asteroids and planets. PIT-45 provides a high specific impulse. And the resulting impulse requires significantly less fuel per mission than similar or homologous chemical propulsion systems. systems (EPS-HEET), satellites for RF, Optical and Earth Observation, and space robotics, autonomous spaceplanes, and spacecraft.



### CUSTOM SOLUTIONS

We design and develop your propulsion systems solutions based on the profile of the mission, budget, specifications, redundancies, and many other factors that could substantially affects the cost per thruster systems



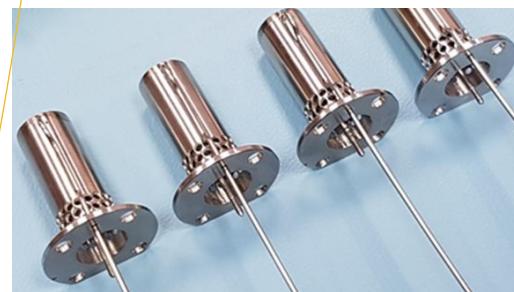
### GREEN PROPELLANTS

WE DEVELOP OUR OWN CHEMICAL PROPELLANTS TO MITIGATE RISKS, REDUCE RISKS, INSURANCE COSTS AND STORAGE COSTS, AMONG OTHERS



### SUBCOMPONENTS

All components and systems have heritage in dozens of missions. Also, all our systems and subsystems have double or triple redundancy depends on the complexity of the mission, to mitigate risks of failure and guarantee the operations for extended periods.



# Satellites

AQST, CONNECTING AND PROTECTING THE WORLD FASTER AND CHEAPER

## QUANTUM X1000

Our proprietary design QX1000 it's our "smallsat" affordable cost platform solution for GEO communications. We manufacture our payloads, software for ground stations, and propulsion systems. All our components are space qualified. This platform could be used for RF or Optical communications. Our unique solution for optical communications allowed our cus-

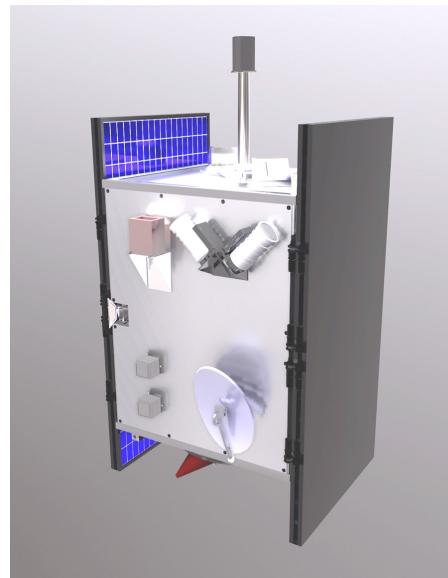


### COMMUNICATIONS (LEO/ GEO SMALLSATS)

- ◆ OPTICAL
- ◆ RF
- ◆ HYBRID

### EARTH OBSERVATION

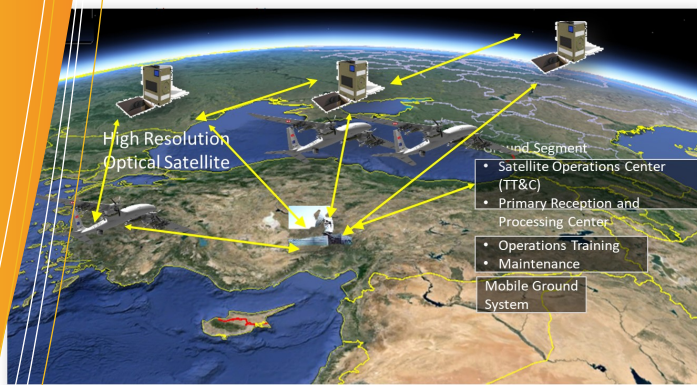
- ◆ SMALLSAT



## EO- AI ISL SOLUTION

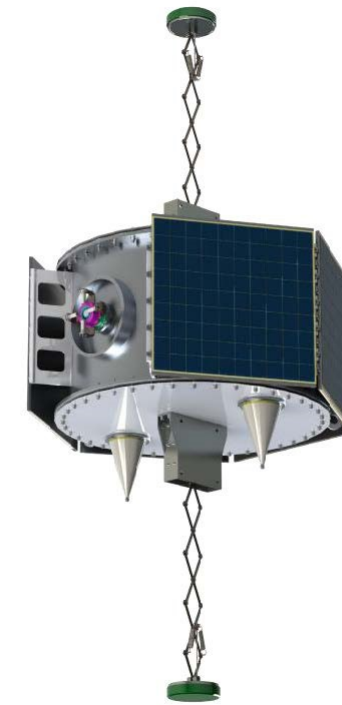
AQST satellites uses our proprietary satellite payloads as well as the software and ground station equipment for satellites flying and operation. Also, the satellite core components like the bus and propulsion systems are manufactured by AQST using proprietary and license technologies.

EO-AI ISL is a solution that integrates optical communication, High-speed broadband with the capability to produce 64 simultaneous beams for ground communications. Our solutions also, integrates AI and other technologies like UAV's , ground antennas, ships and other technologies to provide situational awareness to protect borders, resources and security.



## GRAVISAT

Gravisat is a satellite specifically designed to measure gravitational disturbances and variations for geological surveys, mining, earthquake studies, space archeology, and many other applications; on planet Earth and other planets.



## THOREYE- VHR-X



ThorEye VHR-X satellite is the ideal platform for high-demand EO missions designed to accommodate (VHR) optical systems payloads with 45 cm aperture resulting 0.7m GSD in PAN (incl. HD-video) / MS channels from 550-600 km orbit. From resource management, forest conservation, security, scientific studies, and many others, this very low-cost and high-efficient and high-end EO solution at affordable costs it will be your best choice.



## CUSTOM SOLUTIONS

Our satellites are design and manufactured according to our clients, specifications, budgets, among other parameters. We have based platforms but the configuration , integration and development are based on each specific project.



## COMMUNICATION PAYLOAD

AQST QUANTUM X100 satellite platform integrates optical communication technologies and electric propulsion systems to substantially reduced satellite mass in 45% and the cost of launches as a direct consequence. At the same time, we provide 91Gbps (53044.5 Mbps FWD + 37720 Mbps RTN = 90.76 Gbps to guarantee one of the highest performance in satellite communication in the global market.



## SUBCOMPONENTS

All components payload and systems have heritage in dozens of missions. Also, all our systems and subsystems have double or triple redundancy depends on the complexity of the mission, to mitigate risks of failure and guarantee the operations for extended periods.



# Rovers, robotics & autonomous vehicles

AQST, CONNECTING AND PROTECTING THE WORLD FASTER AND CHEAPER

## PLANETARY AND MULTIPURPOSE ROVERS



AQST with our partners provides a multi-purpose planetary rover with a payload capacity of 500 Kg. Also, our exclusive wheels design reduces the tear makes them more durable to extend the length of any mission substantially. Our rover platform is ESA qualified.

If your mission includes orbital or planetary (mining and exploration, among others) operations, you can count on our low-cost, high-quality, and efficient robotic solution based on your project needs and budgets.



### Because the "A" of AQST means "AUTONOMOUS"

AQST, provides robotic solutions for any kind of missions at very low gravity or aircraft vehicles for multiple uses on planet Earth.

We manufacture robotic arms that are designed to operate at very low gravity for any purpose (in-orbit or planetary).

Autonomous electric aircraft for air spraying for farming, vegetation management, plague control and many other uses.

Autonomous space planes for Earth and Lunar orbits operations.

We can provide the best and cost-affordable autonomous solution based on your budget, needs, and specifications if your mission requires something special. No matter of your needs are for planet Earth, Earth orbit, Lunar orbit or beyond, at AQST we will design the right

## ROVERS

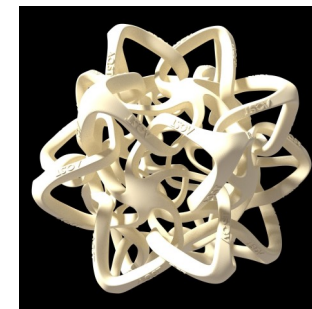
- ◆ PLANETARY MINING & EXPLORATION
- ◆ SPACE PLANE
- ◆ MULTI USES AUTONOMOUS SPACECRAFT

## QX300

QUANTUM-X300 is a multi-purpose autonomous spaceplane capable of services to a wide range of applications, including LEO, MEO, GEO, and Lunar missions. AQST is currently developing QUANTUM-X300, and we have on schedule to be launch in 2024.

- Main Applications:
- Zero-G Laboratory for High-Value Substance Processing
  - Zero-G Additive Manufacturing (Orbital Advanced Manufacturing)
  - In-Orbit Inspection, Maintenance, and Repairs,
  - Orbital Debris Mitigation and Removal

Among dozens of new uses..



# AQST



## ADVANCED SOLUTIONS

We integrate technology with AI to develop solutions that can allow companies to continue operations under any circumstances, reducing losses and improving efficiencies and performance.

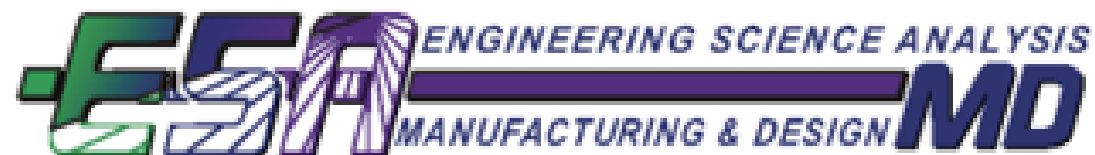


## ROBOTICS FOR THE FUTURE

The future of humanity will depend on our capacity to adapt and evolve faster. The reason why at AQST, we are confident that the best way to help humanity to reach their goals, expectations and increase the survivability rate in the coming years will be using the integration of robotics, AI, and human intellect. We are one of the pioneer companies developing holistic solutions to improve our daily challenges, as well as for the future exploration in space.

# AQST USA Partners Team

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