



**SAFETY. EXPERIENCE.  
CONFIDENCE.**  
**SINGLE-SOURCE SUPPLIER**

**SPACE**



# THE HIGHEST QUALITY TESTING FOR SPACE EXPLORATION

Together, Element and NTS are the global leader in end-to-end solutions for space with testing services for satellites, rockets and spacecraft for civil, commercial and military use. Together, we have participated in every major space program since the inception of human space exploration. Our expertise has helped launch every rocket in history into space, enabled satellites in low Earth orbit, and is currently guiding the mission to go to Mars. We deliver:

- Unparalleled delivery time for projects of any size, duration or location
- Peace of mind with our robust program management and seamless communication and support plans
- Test results with unmatched levels of accuracy and quality
- Direct access to top engineering experts for technical guidance
- Built-in redundancies in capacity that de-risk your development cycle, resulting in a more resilient supply chain
- Unmatched quality performance with the most expansive breadth of capabilities and unparalleled capacity and experts to accelerate your mission into space
- State-of-the-art testing from engines to propellant bottles, fasteners to 3D printed materials and composites, panels to spacecraft structure
- Product qualifications in all environments
- Simulation of pre-launch, launch, and space environments
- Expertise in R&D, material allowables, material selection, and ongoing production support
- Lower cost, faster development cycles possible with digital modeling services that validate designs before production
- Large scale testing and custom programs, saving you both time and money
- Confidence that testing plans fit your specific needs, reducing the risk of costly delays and retests

## ROCKETS

- Rocket Thrust Stand and Exhaust Duct Testing
- Outgassing Analysis
- Extreme Environmental Testing
- Direct and Indirect Lightning
- High Pressure, High Flow Pneumatic Tests at Temperature
- Aerodynamic Heating for Simulated Hypersonic Flight
- Advanced EMI/EMC Testing
- Pyroshock
- High Level Vibration Testing
- NDT & Destructive Testing
- Fracture Toughness & Fatigue



## SATELLITE

- Thermal Shock and Cryogenic Component and Subsystem Testing
- Outgassing Analysis
- Extreme Environmental Testing
- Precision Cleaning
- Advanced EMI/EMC Testing
- Pyroshock
- High Level Vibration Testing
- NDT & Destructive Testing
- Fracture Toughness & Fatigue
- Radiated Aging & Effects



## ENGINES

- Astronautics and Propulsion Testing
- Outgassing Analysis
- Extreme Environmental Testing
- High Pressure, High Flow Pneumatic Tests at Temperature
- Advanced EMI/EMC Testing
- Pyroshock
- High Level Vibration Testing
- NDT & Destructive Testing
- Fracture Toughness & Fatigue

## NASA AWARD WINNER

Element is a recipient of the prestigious Space Flight Awareness Supplier Award. Nominated by Boeing Corporation and Lockheed Martin, Element is the only independent test laboratory to receive the honor from NASA.

According to NASA, the award “honors outstanding performance” among suppliers who demonstrate “production of high-quality products, excellent technical and cost performance, and adherence to schedules.”



## SPACE STATIONS

- Space Simulation/Thermal Vacuum Cycling
- Outgassing Analysis
- Extreme Environmental Testing
- Precision Cleaning
- Advanced EMI/EMC Testing
- NDT & Destructive Testing
- Fracture Toughness & Fatigue
- Radiated Aging & Effects

## ACCELERATING YOUR PATH TO SPACE

### PROOF OF CONCEPT

R&D consulting/advisory services  
Digital modeling & simulation  
Early stage design optimization

### DIGITAL ENGINEERING

Applied Science & Engineering  
Software engineering services  
Data Science and Machine Learning  
Digital Twin Solutions  
Digital technology Solutions

### MATERIALS TESTING & SELECTION

NDT  
Mechanical  
Chemical  
Corrosion  
Coatings  
Fracture & fatigue  
Metallurgical  
Thermal

### DESIGN

Guidance on specs to right test platform  
Develop or edit test plan/procedures to show compliance  
Digital modeling & simulation

### FABRICATE, INTEGRATE AND TEST

Climatics  
Environmental simulation  
Hydraulic & pneumatic simulation  
EMI  
Dynamics  
Lightning  
Fire & flammability  
Fluids and fuel

### PRODUCTION / MANUFACTURING SUPPORT

NDT  
Mechanical  
Chemical  
Corrosion  
Coatings  
Fracture & fatigue  
Metallurgical  
Thermal

### LAUNCH AND ORBITING SIMULATIONS

Pre-launch, launch and space extreme environmental testing  
Failure analysis & evaluation  
Thermal vacuum testing  
Cold space testing  
Infrared radiation testing





Global reach,  
localized presence  
in the United States,  
Canada, Mexico,  
UK, Spain, France,  
Netherlands & China

# CONNECT WITH AN EXPERT

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