SPACE

PERFORMANCE. INNOVATION. EXPERIENCE.

MOOG

SAFEGUARDING SPACE, PROTECTING EARTH

RELIABLE SPACE SUPERIORITY CAPABILITIES FOR THE ULTIMATE HIGH GROUND

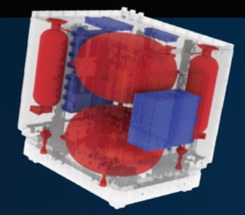
Moog designs and manufactures robust systems and components for commercial and government spacecraft, missiles, and launch vehicles. An innovative, reliable industry leader in space avionics, actuation and mechanisms, propulsion, fluid controls, structures, and shock and vibration isolation, Moog has been committed to revolutionizing the way to space for more than 75 years. For future space missions, Moog is investing in next-generation orbital maneuvering vehicles, radiation-hardened avionics, propulsion test facilities, and metal additive manufacturing for mission-critical, multi-domain solutions.

SPACECRAFT BUSES

- Flight-proven spacecraft
- Modular, adaptable, multimode, payload agnostic
- Built on GEO-proven technologies

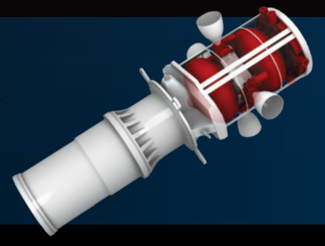
HIGH DELTA-V PROPULSION SYSTEMS

- Next-generation chemical engines and tanks
- Rapid iteration, scalable for mission need
- Producible at scale for mission life



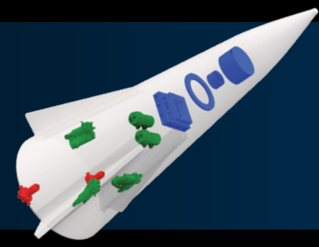
DIVERT AND ATTITUDE CONTROL SYSTEMS

- Fluid components and engines integrated into propulsive divert and attitude control systems (DACS)
- Solid, liquid, and cold gas solutions
- Finding solutions for unique packaging and propulsion challenges



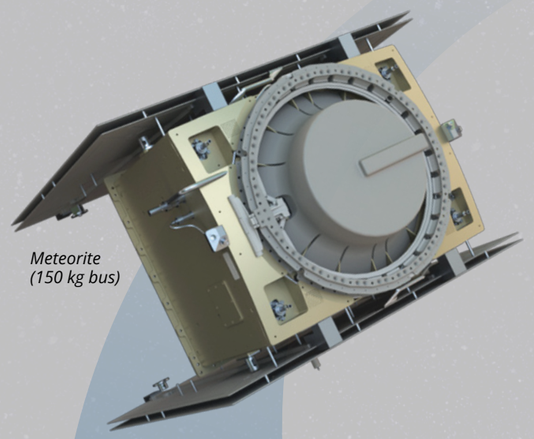
INTEGRATED NAVIGATION, GUIDANCE AND CONTROL

- Robust, radiation-hardened solutions for hypersonic vehicles
- Photonics-enabled systems to reduce size, weight, and power
- Integrated actuation, propulsion, and power system control in a single package

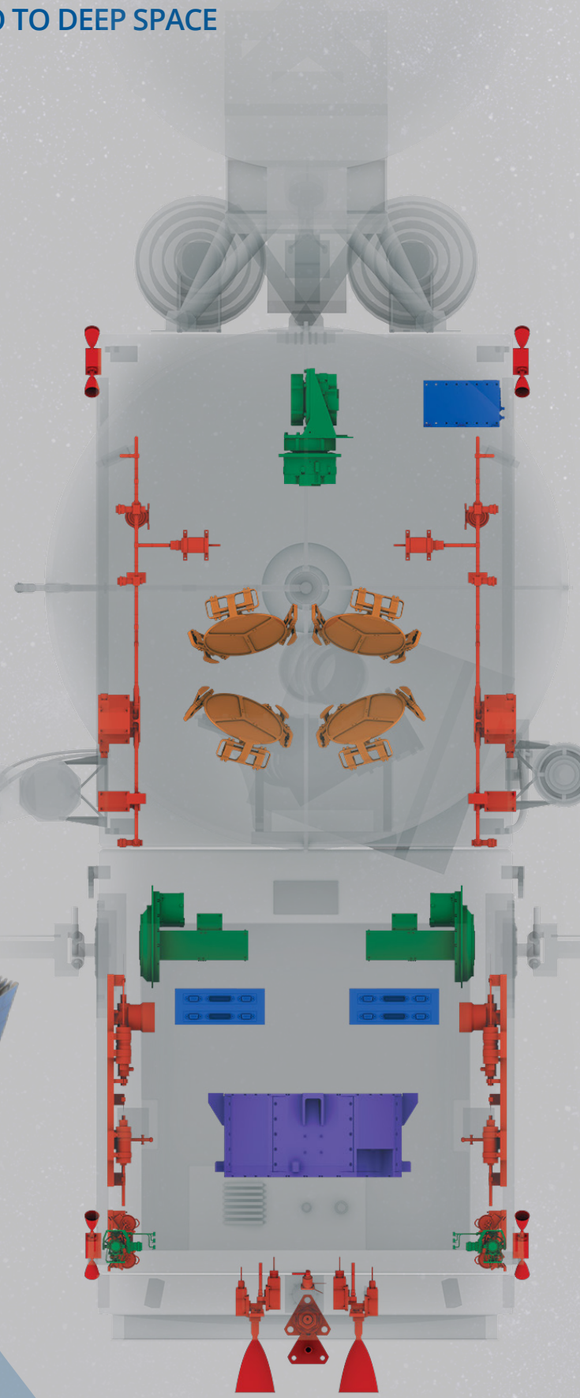


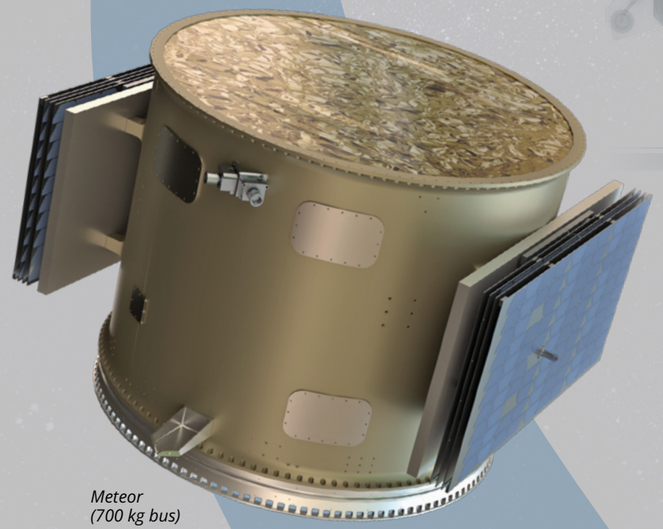
SPACECRAFT TECHNOLOGIES

FLIGHT-PROVEN INNOVATION FROM LEO TO DEEP SPACE



Meteorite (150 kg bus)



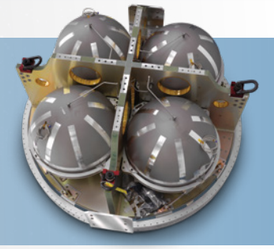


Meteor (700 kg bus)

INTEGRATED SPACECRAFT BUSES AND TUGS

- Payload agnostic, flight-proven spacecraft
- Radiation-shielding design
- Built on GEO-proven technologies
- Meteorite: ESPA Class Bus, 3-5 Years in High LEO
- Meteor: Medium Spacecraft Bus for LEO to Lunar

PROPULSION

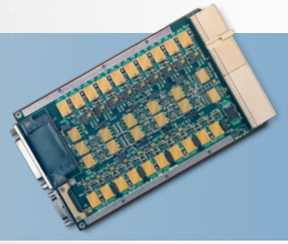


- Chemical, electric, cold gas, and green propulsion
- Complete systems, subsystems, and components to enable dynamic space operations
- Station keeping, attitude control, and divert and attitude control systems
- Thrusters from 1N to 500 N

AVIONICS

- High performance and radiation-tolerant avionics
- Command and data handling, power control/distribution, and motor controllers
- Payload processing, data storage, and GPS receivers
- Onboard computing, artificial intelligence, and machine learning

POWER SYSTEMS

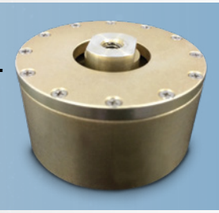


- High-power control systems
- Power for telemetry, solar array, and battery management
- DC converters and switching solutions

MECHANISMS

- Rotary and linear actuators for spacecraft motion control
- Solar array drives, gimbals, and antenna pointing mechanisms
- Control electronics and specialty positioners

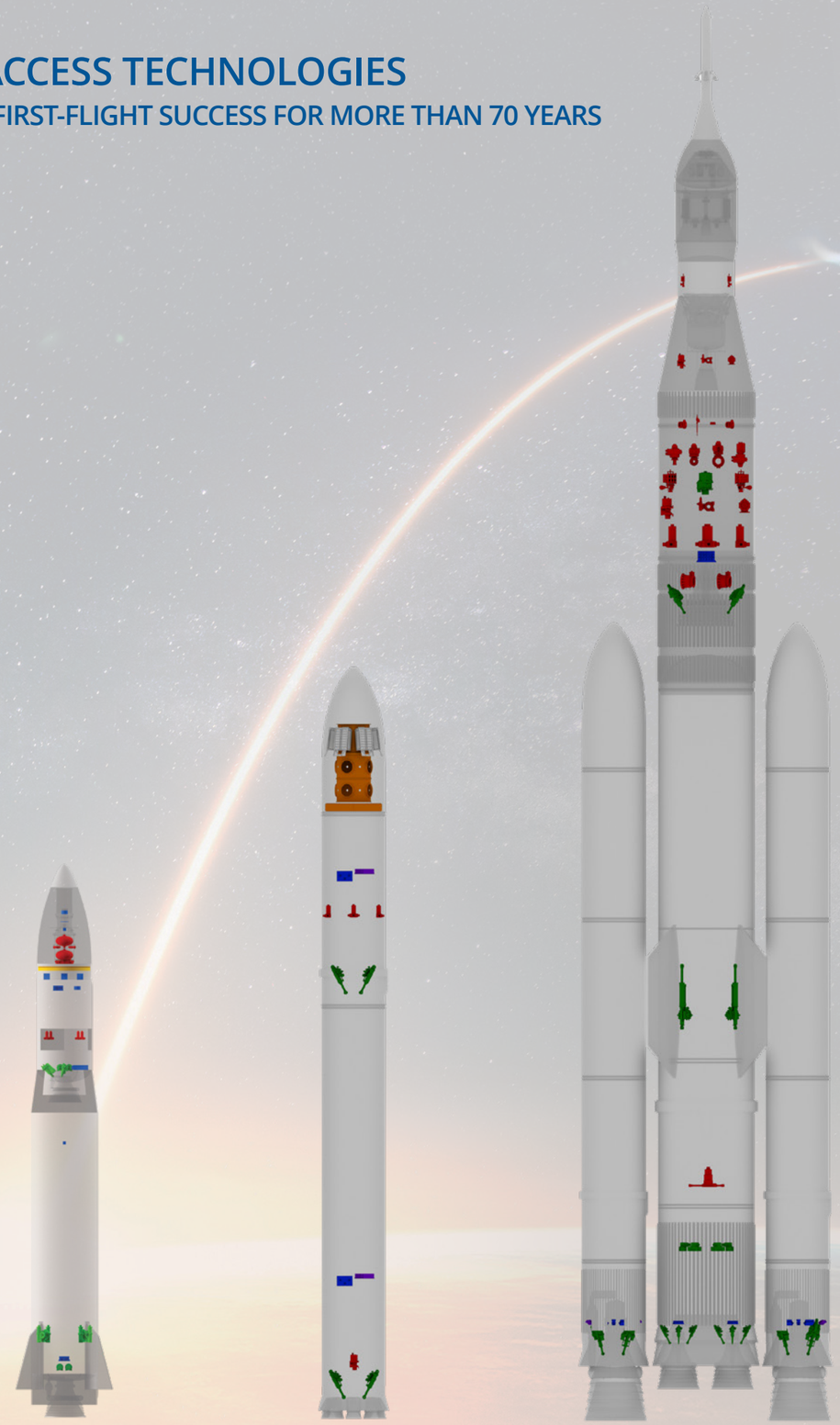
PAYLOAD ADAPTERS, SHOCK AND VIBRATION CONTROL



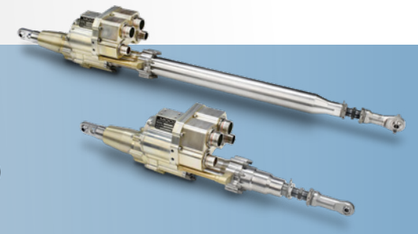
- Vibration and shock isolation solutions
- SoftRide and ShockWave products
- Payload adapters and ESPA ring

SPACE ACCESS TECHNOLOGIES

ENABLING FIRST-FLIGHT SUCCESS FOR MORE THAN 70 YEARS

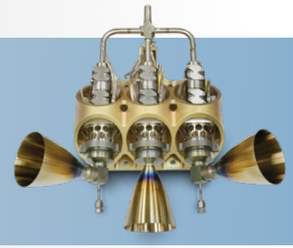


ACTUATION



- Motion control for launch vehicles and space planes
- Electrohydraulic (EH), Electromechanical (EM), and Electrohydrostatic (EHA)
- Thrust vector, fin, flap, and engine control

PROPULSION



- Earth-storable and cryogenic propulsion components and systems
- Fluid and pneumatic controls for engines
- Cold gas and Earth-storable thruster for roll control
- Divert and attitude control systems

AVIONICS AND POWER SYSTEMS

- Control and power for actuation systems
- Data acquisition and engine controls
- Inertial navigation sensors and integrated guidance, navigation, and control solutions
- Power distribution and management
- Ethernet switches

SHOCK AND VIBRATION CONTROL

- Shock and vibration isolation solutions
- Optimized for coupled payload and launch systems
- Significant reductions in launch environments
- More flexibility to maximize mission capabilities

ESPA RING AND PAYLOAD ADAPTERS

- Industry standard for small satellite rideshare and bus structures
- ESPA is payload configurable
- Payload adapters for any mission scenario

A COLLABORATIVE APPROACH TO SOLVING OUR CUSTOMERS' MOST DIFFICULT CHALLENGES

As global threats evolve, we're expanding to meet the mission. Across the US, Europe, and Australia, our facilities are growing to 2,000,000 square feet of production floor space, increasing capacity by more than 100% at critical sites to deliver more of what matters: precision motion control components for sea, land, air, and space systems, like counter-UAS systems, missile guidance and steering controls and in-space vehicles. Our commitment to mission-enabling technology drives our capacity expansion, ensuring readiness, reliability, and rapid response for defense partners worldwide.

MOOG AT A GLANCE

- Founded in 1951
- 20 Countries
- 14,000 Employees Worldwide

SPACE AND DEFENSE GROUP AT A GLANCE

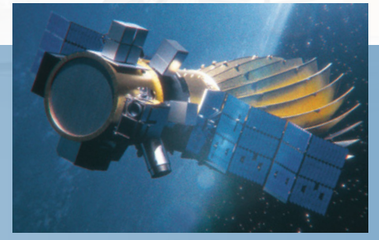
- Over 2 million square feet of modern and innovative production floor space
- 100% capacity increase at critical sites with multi-shift operations.
- 75 Years of spaceflight heritage
- Hardware launches into space weekly

MULTI-DOMAIN MISSION CRITICAL SOLUTIONS

SEA
www.moog.com/sea

LAND
www.moog.com/land

AIR
www.moog.com/air



SPACE
www.moog.com/space

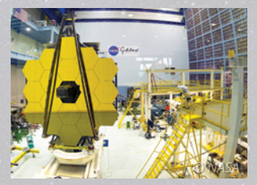
WHEREVER YOUR MISSION NEEDS TO BE

SPACECRAFT

AEHF

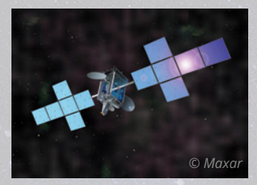
GOES-R

ORBCOMM Generation 2 (OG2)



JWST

Galileo



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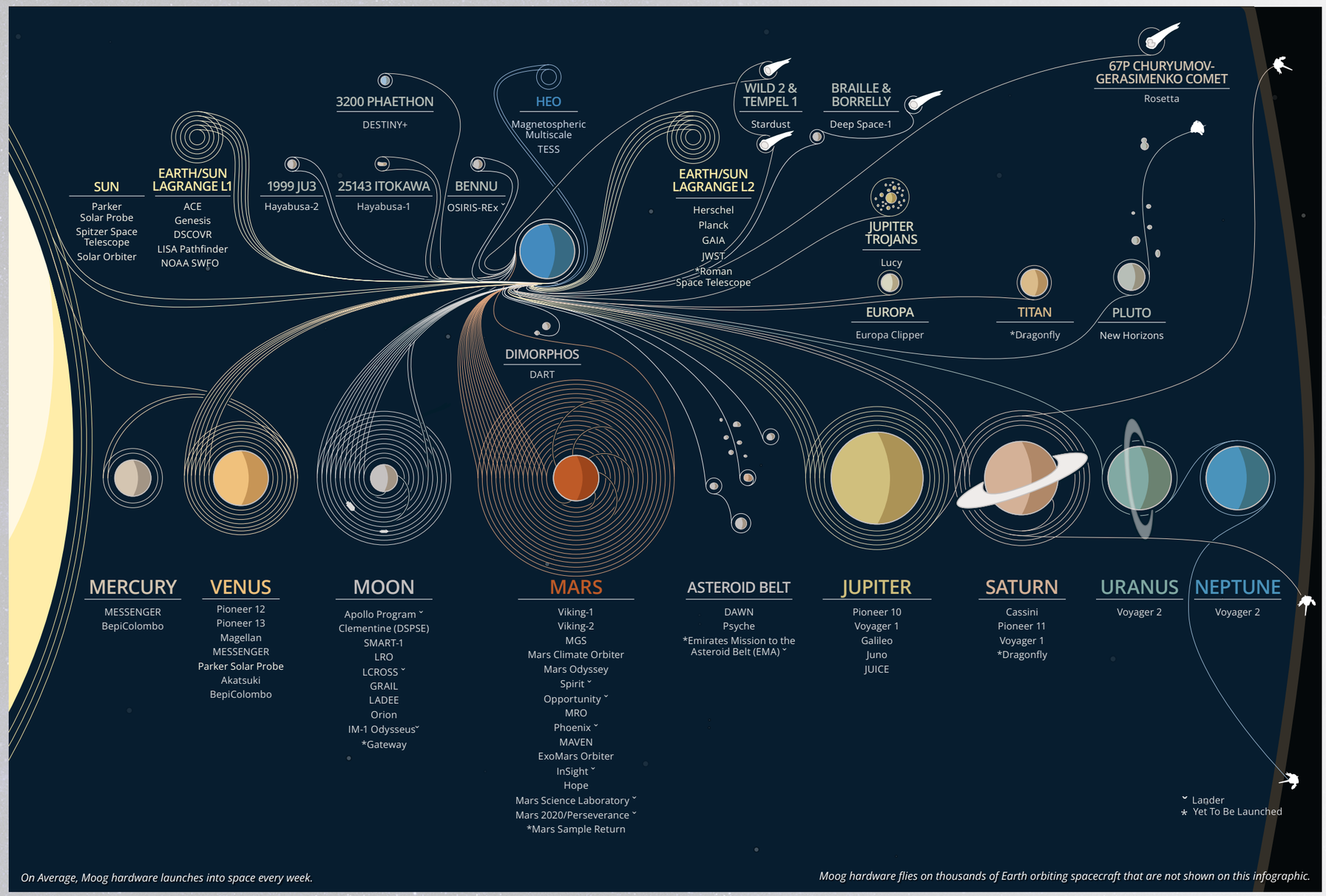

On Average, Moog hardware launches into space every week.

Moog hardware flies on thousands of Earth orbiting spacecraft that are not shown on this infographic.

LAUNCH VEHICLES

Vulcan

New Glenn

Ariane 5

SLS

Falcon 9

Atlas V

MOOG

Shaping the way our world moves™

For More Information:
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www.moog.com/space

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