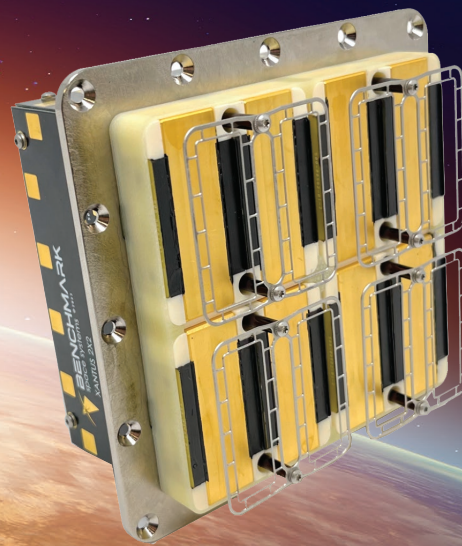


XANTUS

Metal Plasma Thruster Systems Designed for Small Satellites



PRODUCT HIGHLIGHTS

Xantus Metal Plasma Thruster (MPT) is Benchmark's first electric propulsion offering, acquired from Alameda Applied Sciences Corporation in 2022 for its differentiated attributes and operational capabilities. Each Xantus delivers up to 5 kN-s of impulse using quasi-neutral pulsed plasmas created from solid metal propellant.

Xantus Features:

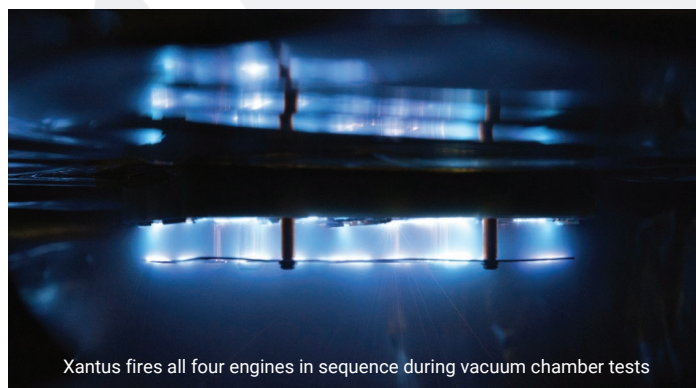
- ✓ Produces highest total impulse in its size
- ✓ Constant efficiency across 1-100 W input power range
- ✓ 10 μ N-s impulse bit precision
- ✓ 0 W standby power with instant cold start
- ✓ Broad propellant compatibility, including ISRUs
- ✓ 4-month product lead time

Xantus DOES NOT Require:

- ✗ An ion neutralizer
- ✗ Gas or liquid propellants
- ✗ Heaters or DC high voltage electronics
- ✗ Ground loading of propellant (ships fueled)

MISSION-OPTIMIZED TECHNOLOGY

Xantus metal plasma thrusters are designed to support most cubesat missions as well as microsat and ESPA class missions. Multiple Xantus can be integrated into a single spacecraft to optimize delta-V and control authority for high-endurance station keeping, ultra-precise pointing, rendezvous, and docking operations. This technology enables Benchmark's first integrated chemical + electric hybrid systems for microsats and will serve a prominent role in In-Space Servicing, Assembly and Manufacturing (ISAM) operations.



Xantus fires all four engines in sequence during vacuum chamber tests

APPLICATIONS



Orbit
Insertion



Collision
Avoidance



Orbit
Transfer



Station
Keeping



Precision
Pointing



Mission
Extension



Momentum
Management



RPO and
Servicing



Controlled
Deorbit

SYSTEM SPECIFICATIONS

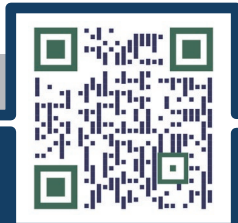
MPT Benefits	
Solid Metal Propellant	Can be stored indefinitely and shipped with no fueling or ground operations required.
Simple Power and Control Unit	24 – 36 V across all power modes with operation down to 14 V input.
Pulsed Operation, Precise Impulse Bits	10 μ N·s MIB and controllable firing sequence delivers precision axial and torque maneuvers in one device.
Modular Design	5 kN·s per 1/2U package, can be combined with additional MPT or Chemical thrusters.
Wide Operational Range	With 0 W stand-by and no warm-up time, activates instantaneously and operate with 1-100 W

Parameter	Value
Wet Mass	1.4 kg
Dry Mass	0.85 kg
Propellant	Solid Molybdenum*
Volume	0.53 L (94mm x 94mm x 60mm)
ISP	1764 s (varies by propellant)
Minimum Impulse Bit	10 μ N·s
Thrust/Power Ratio	10 μ N/W
Total Impulse	5000 N·s
PPU	Simple, 45 V Max DC
SC Interface	RS-422
Standby and Threshold Power	0 W
Turn-on Delay	Instant Cold Start
First Flight	March 2024 USSF EWS ROCCI-2 Mission (Electro-Optical Weather System)

*Alternate metal propellants available

PRODUCT, CONFIGURATION, AND PRICING INQUIRIES: Sales@Benchmark-Space.com

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MORE MISSION. LESS COST.

Benchmark is a full lifecycle partner committed to supporting your mission from initial concept planning through asset decommission in LEO, GEO, and beyond. By combining our mission experience, heritage propulsion products and advanced control systems with complementary products and services, Benchmark delivers unparalleled in-space mobility solutions for cubesat through ESPA and OTV spacecraft. Our offerings provide significant cost, schedule, and capability benefits, allowing operators to focus on mission success and ROI generation.

Contact us today to explore your mission!