ORBION SPACE TECHNOLOGY

Accelerating the Satellite Revolution with **Electric Propulsion**

Nova

Reliable Kilowatt-class Electric Propulsion for Small Satellite Missions

The Orbion Plasma Propulsion System – Nova is based on the most reliable, well-known form of electric propulsion (EP) in existence – Hall-effect thruster (HET) technology.
Commonly used in spacecraft propulsion for over 30 years, HET is a type of ion thruster which accelerates propellant via an electric field. Trapped within an intense magnetic field, electrons ionize the propellant – in the case of Nova, inert xenon or krypton gas – creating ionized plasma. The resulting exit velocity of the plasma of up to 15, 000 meters per second produces the thrust needed to maneuver spacecraft.

Orbion's Nova EP Solution Enables All of the Following for SmallSat Missions

- Allows for constellation deployment from a single launch vehicle
- Raises orbit to higher altitudes
- Routine orbit maintenance
- Maintains very low earth orbit (VLEO)
- Enables xGEO missions
- Avoids collisions
- De-orbit at end of life



Nova Propulsion System

Hall thrusters provide significant propellant savings over chemical propulsion-based systems. And of course, the less propellant needed translates to more payload for your mission.

Specification	Value
Propellant	Xenon or Krypton
Input voltage from spacecraft	28 V unregulated
Dry mass of system	10 kg (does not include tank or propellant lines)
Data interface with spacecraft	RS-422
Total impulse	>1.5 MN-s

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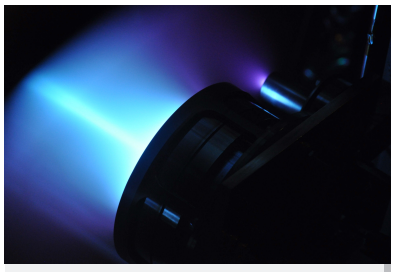
Accelerating the Satellite Revolution
with **Electric Propulsion**

Nova

Reliable, Affordable Electric Propulsion for large satellites and xGEO Missions

Performance Data (Xenon)

Discharge Power,W	Anode Flow, mg/s	Thrust, mN	Total Isp, s
600	2.6	40	1467
800	3.2	53	1577
1000	3.7	64	1647
1200	4.3	76	1693



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Xe
Xenon

Xenon is a colorless, odorless, nontoxic gas present in the atmospheere. Decades of development experience prove that Xenon is the highest-performing propellant in the periodic table. Xe is immune from freeze damage, will not contaminate nor damage spacecraft surfaces, has a high storage density (2kg/liter – 2x greater than liquid water), and is easily metered with proven techniques. Xe is trusted by the most demanding customers.

Our Design

Nova is a complete integrated system, including thruster, power processing unit, propellant management assembly, and electrical harnessing that was designed from the ground up to be affordable, reliable, mass-producible product in our AS9100 certified factory. We didn't just design a new thruster; we instead designed an entirely new process. Orbion's vertical production approach leverages the speed, efficiencies, and reliability of automated test equipment. Our AS9100 certified manufacturing process can produce one to unit per run, or 1,000 units per run – all of them enjoying the same low price and high reliability.



Visit our website for more information.

Nova's Spec Sheet:
orbionspace.com/product

Online Configurator:
Orbionspace.com/thruster-configurator

El Matador dual mode capability
Spec Sheet:
orbionspace.com/resilience

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