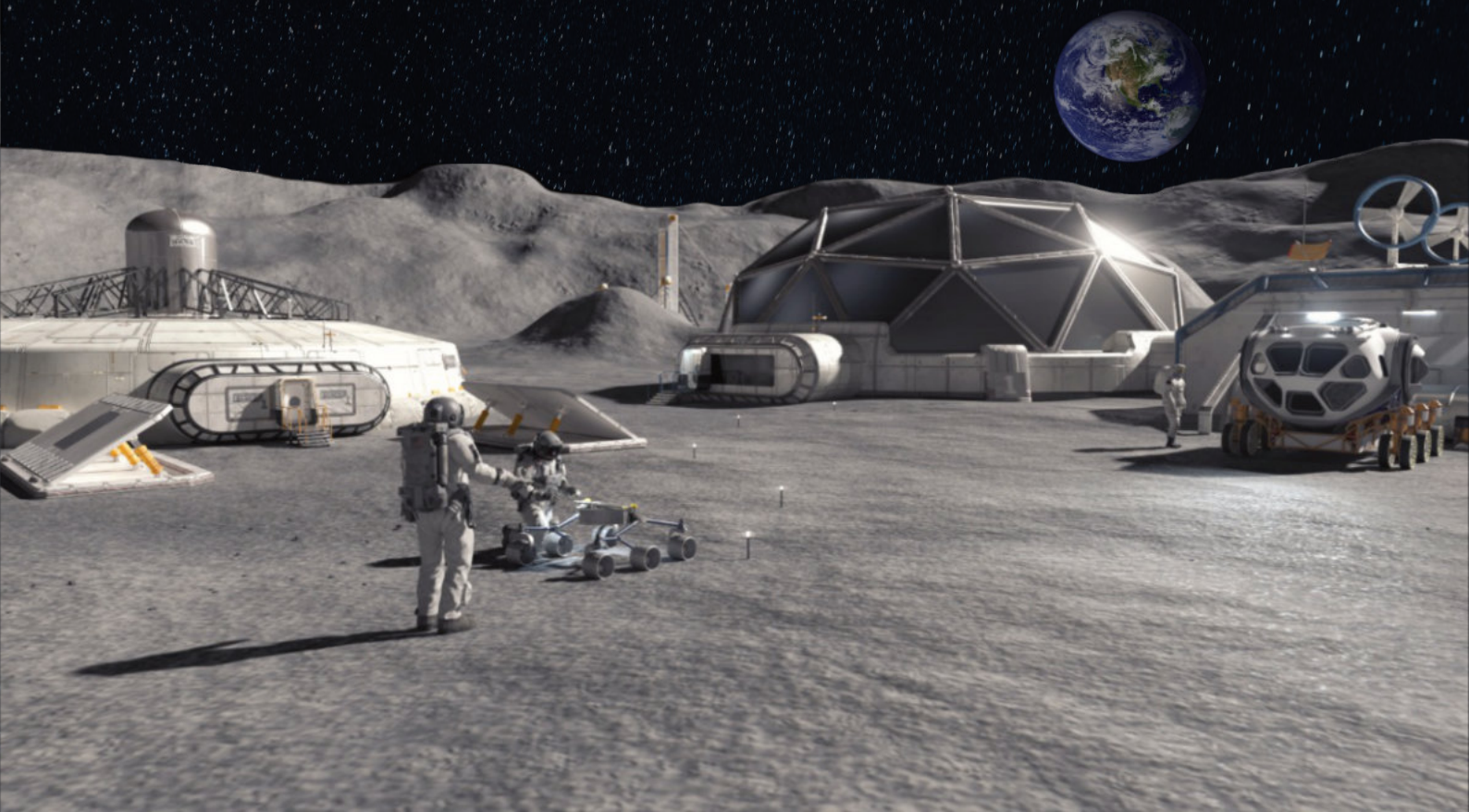
BELLATRIX AEROSPACE

Propelling Dreams

Future of Space Mobility



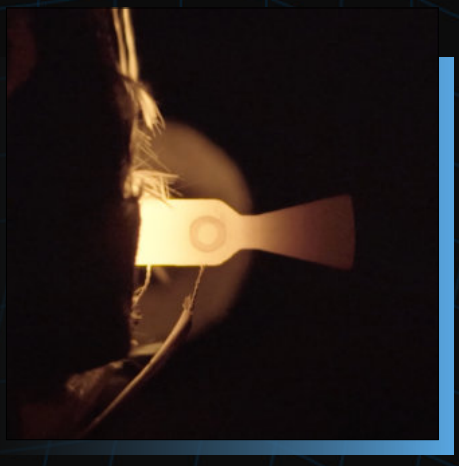
About

Bellatrix Aerospace is a new age space mobility company that develops and manufactures advanced propulsion technologies for a wide range of missions, from deploying and phasing nano and micro satellite constellations to ferrying multi-ton communication satellites to the geo-stationary orbit.

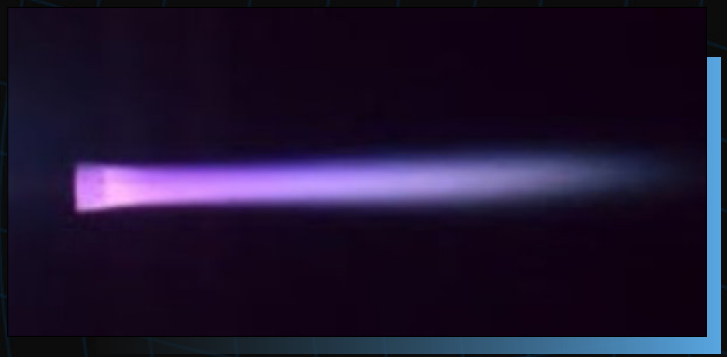
We bring the agility, innovation and lead times of a start-up, coupled with diverse portfolio and reliability of a legacy prime contractor. Our products are designed to overcome challenges associated with incumbent technologies, through better performance, longer life and reduced costs. Since our inception in 2015, our legacy boasts of multitude of firsts from testing the first privately built plasma thruster that uses water as a fuel to creating a green high performance alternative to hydrazine-based chemical propulsion systems.

Our state-of-the-art in-house production and test facilities help us engineer next-generation products, ensuring qualifications as per globally accepted standards and harsh space environments.

Firing of Arka HET



Firing of Rudra HPGT



Firing of Jal 5000 MPT

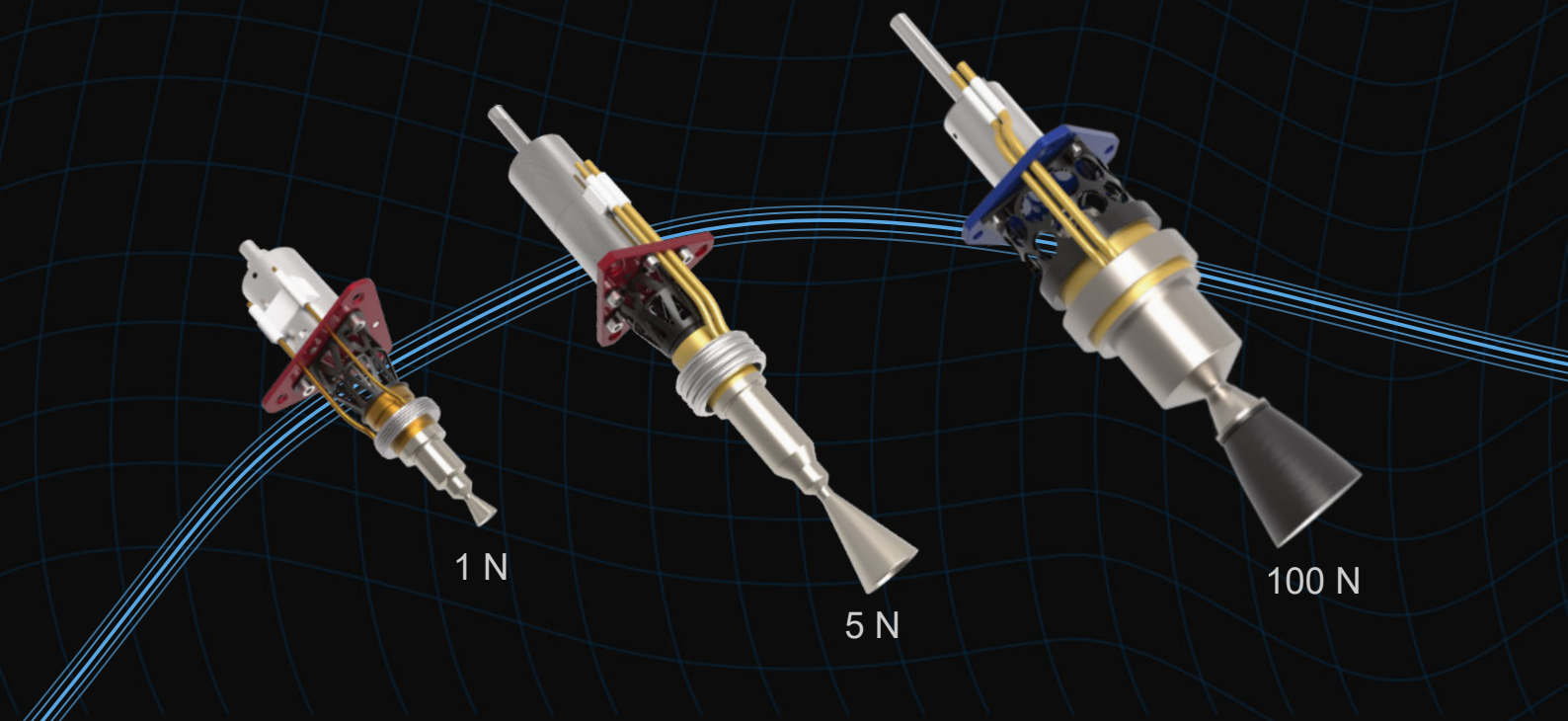
Green Propulsion

Our state-of-the-art RUDRA® series of green propulsion systems offer superior performance than conventional Hydrazine systems and are also less toxic and easier to handle. Our stable green propellant blend in conjunction with our proprietary high-performance catalyst offers longer mission life and high specific impulse.

Bellatrix incorporates post launch pressurization and several other design improvements for easy integration into modular 1U platform while being flexible to scale to 2U, 3U and higher volumes depending upon the mission requirements / type of satellites.

Rudra Series Thrusters	Rudra - 1	Rudra - 5	Rudra - 100
Nominal Thrust	1 N	5 N	100 N
Propellant	BHP-69MA (Proprietary Green Mono Propellant)		
Inlet Pressure	8 - 26 bar	8 - 26 bar	5.5 - 23 bar
Vacuum Specific Impulse	235 s	250 s	255 s
Minimum Impulse Bit	< 50 mN s	< 0.1 N s	< 2.5 N s
FCV Type	Dual Coil, Dual Seat Solenoid		Single Coil, Single Seat Solenoid
FCV Power	8 - 10 W @ 28 - 32 V DC		35 W @ 28 V DC
Catalytic Bed Heater power	8 - 10 W	15 - 20 W	75 -100 W

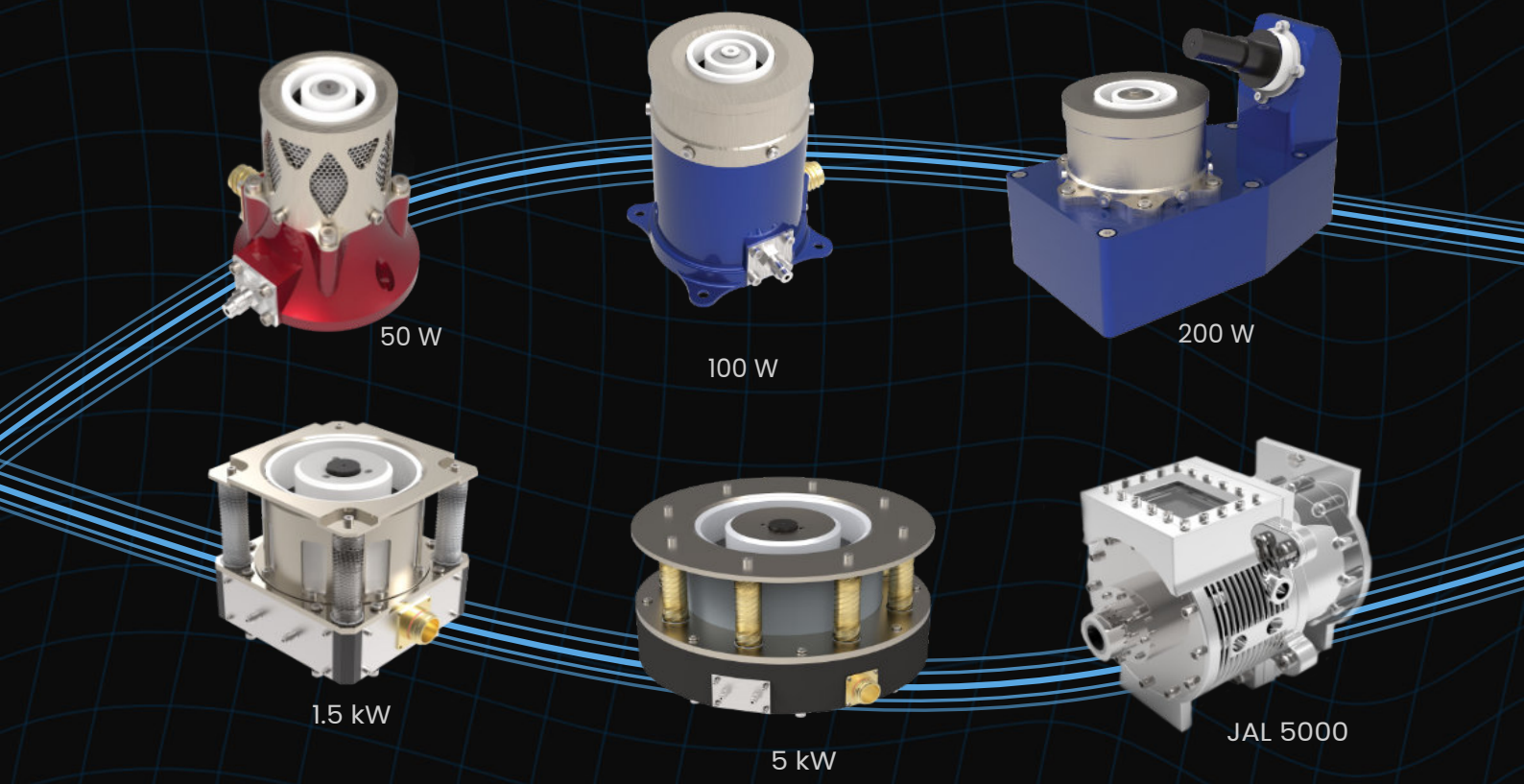
* contact us for more information



Electric Propulsion

Bellatrix Aerospace has been pioneering in Electric Propulsion technologies with over 10 years of experience. Our Arka® series of HETs represents our commitment to continually innovate, even with products that encapsulate mature technology. With our novel design approach, we have achieved improvements in performance, operational life, cost and weight savings to the HET which makes it ideal for a plethora of mission requirements.

Our Water-powered JAL® series of Microwave Plasma Thrusters offer the highest thrust-to-power ratio for an electrical propulsion system and 4X higher specific impulse compared to chemical propulsion systems. These coupled with low cost, high reliability and ease of handling make it an ideal choice for GEO missions. We offer MPT even at power levels >5kW.



Arka Series Thrusters	Arka 050	Arka 100	Arka 200	Arka 1500	Arka 5000
Thrust	3 mN	7 mN	13.2 mN	86 mN	300 mN
Discharge Power	50 W	100 W	200 W	1.5 kW	5 kW
Voltage	140 - 280 VDC	200 VDC	250 VDC	350 VDC	400 VDC
Propellants	Xenon, Krypton and a Proprietary Solid Propellant under development				
Specific Impulse	860 s	1000 s	1357 s	1668 s	2080 s

* contact us for more information

Nano Thruster

Nano satellite propulsion technologies are plagued with challenges such as very low thrust, high power requirements and volume constraints. Our novel nano thruster has been designed to solve these shortcomings and enable collision avoidance and de-orbiting capabilities. Our advanced nano fabrication processes allow the entire thruster to be a one-piece assembly entailing a significant reduction in time and cost while also retaining its flexible plug and play interface for easier integration.

MEMS Nano Thruster

Space Qualification

Image Courtesy : ISRO

In April 2023, Bellatrix tested the Arka® 200 Hall Effect Thruster with the World's first indigenously developed Heaterless Hollow Cathode flown in orbit using ISRO's PSLV C-55.

Multiple indigenous technologies qualified through this mission.

UPCOMING LAUNCHES

Rudra and Arka thrusters launching in Q4 2023 and Q2, Q3 & Q4 2024

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