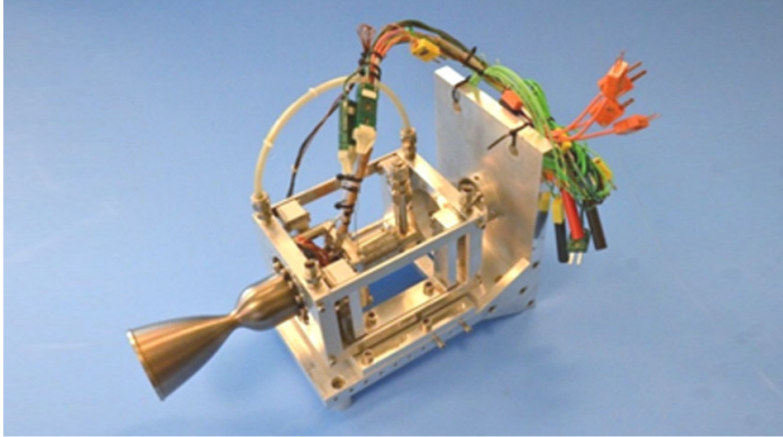


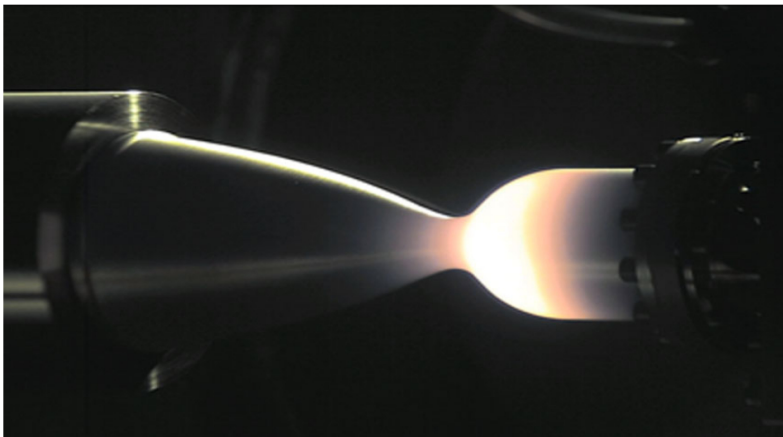
50N HPGP Thruster



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Bradford ECAPS's **50N HPGP Thruster** is designed for attitude, trajectory and orbit control of larger satellites, including geostationary satellites, or launch vehicle applications. This thruster is currently in development and looking for partners to bring the prior work into fruition.

- Propellant loading is **simple, fast** and avoids the cost associated with loading hydrazine. Allows the operator to spend less time on ground operations and more time on space operations.
- 'Fuel at the factory' – be ready for launch vehicle integration upon arrival at the launch pad. Eliminates significant time and cost from lengthy pre-launch campaigns.
- **Non-toxic propellant** is suitable for a new class of responsive small satellite launchers, where handling hazardous hydrazine may impede operations or where fully equipped hydrazine processing facilities may be non-existent at the launch site.
- **Higher performance** over hydrazine allows for more payload or longer mission durations.
- Allows for more secondary or 'piggy-back' launch opportunities, especially missions where there is concern about the hazards of hydrazine and its risks to the primary payload.
- Allows for **more agile mission profiles** than electric propulsion. Spacecraft take significantly less time to execute maneuvers and orbit changes.



Specifications Table

Thruster Type	HPGP
Propellant	LMP-103S
Thrust Class	50 N

Primary Operational Mode	Δv
Inlet Pressure Range	5 - 26 Bar
Thrust Range	12.5 - 50 N
Nozzle Expansion Ratio	150:1
Steady State ISP (vacuum) Typical	2385 - 2500 Ns/Kg (243 -255 s)
Density Impulse (vacuum)	2957 - 3100 Ns/L
Minimum Impulse Bit	≤ 2.5 Ns
Overall Length	327 mm
Mass	2.1 kg
FCV Type	Solenoid
- No of Seats	Dual Seat
- Pull-in Voltage	28 ± 4 VDC
- Holding Voltage	10 ± 1 VCD
- Coil Resistance (each coil)	64 Ω
Nominal Reactor Pre-heating Voltage	27 VDC
Regulated Reactor Ore-heating Power	75 - 100 W TBC
Target Life - Qual. Level	
Pulses	2,000
Propellant Throughput	50 kg
Longest Continues Firing	25 minutes
Accumulated Firing Time	1 hour
Firing Sequences	100
Demonstrated Life	
Pulses	160
Propellant Throughput	1.7 kg
Longest Continues Firing Time	10 seconds
Accumulated Firing Time	45 seconds
Firing Sequences	12
Maturation Level	TRL 4
Current Status	
	Flight Like Model Designed