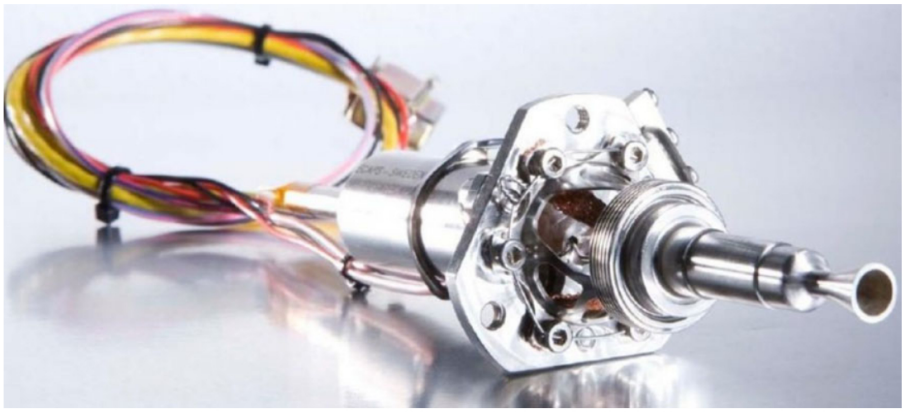
1 N HPGP Thruster



1N HPGP Thruster

Bradford ECAPS's **1N HPGP Thruster** is designed for attitude and orbit control of small-sized satellites. With 46 1N HPGP thrusters having been demonstrated to date aboard the **PRISMA** spacecraft and the **SkySat** series, the **1N HPGP** is our most heritage line of thrusters and most popular with small to medium sized spacecraft, up to 750 kg. The high performance and non-toxicity is highly prized by developers of agile and responsive spacecraft and particularly suited for the fast-paced NewSpace industry.

- **Non-toxic propellant** makes for easier and less costly integration on secondary or 'piggy-back' missions.
- 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.
- **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 capable missions than spacecraft without propulsion.
- Allows for **more agile mission profiles** than electric propulsion. Spacecraft take significantly less time to execute maneuvers and orbit changes.

The **1N HPGP thrusters** can be provided individually or as an integrated system. For instance, each SkySat propulsion system consisted of four **1N HPGP** thrusters along with tanks, flow regulators and other avionics. **Get in contact today** to talk to us about all our small sat solutions!

Specifications Table

Thruster Type	HPGP
Propellant	LMP-103S
Thrust Class	1 N
Primary Operational Mode	RCS + Δ v
Inlet Pressure Range	4.5 - 22 Bar

Thrust Range	.25 - 1 N
Nozzle Expansion Ratio	100:1
Steady State ISP (vacuum) Typical	2000 - 2270 Ns/Kg (204 - 231 s)
Density Impulse (vacuum)	2480 - 2815 Ns/L
Minimum Impulse Bit	≤ 70 mNs
Overall Length	178 MM
Mass	0.38 KG
FCV Type	Solenoid
- No of Seats	Dual Seat
- Pull-in Voltage	28 ± 4 VDC
- Holding Voltage	10 ± 1 VCD
- Coil Resistance (each coil)	190 Ω
Nominal Reactor Pre-heating Voltage	28 VDC
Regulated Reactor Ore-heating Power	8 - 10 W
Target Life - Qual. Level	
Pulses	60,000
Propellant Throughput	24kg
Longest Continues Firing	45 minutes
Accumulated Firing Time	25 hours
Firing Sequences	1500
Demonstrated Life	
Pulses	60,000
Propellant Throughput	24 kg
Longest Continues Firing Time	1.5 hours
Accumulated Firing Time	25 hours
Firing Sequences	1500
Maturation Level	TRL 9
Current Status	
	Space Qualified: 12 Systems and 46 Thrusters In-orbit