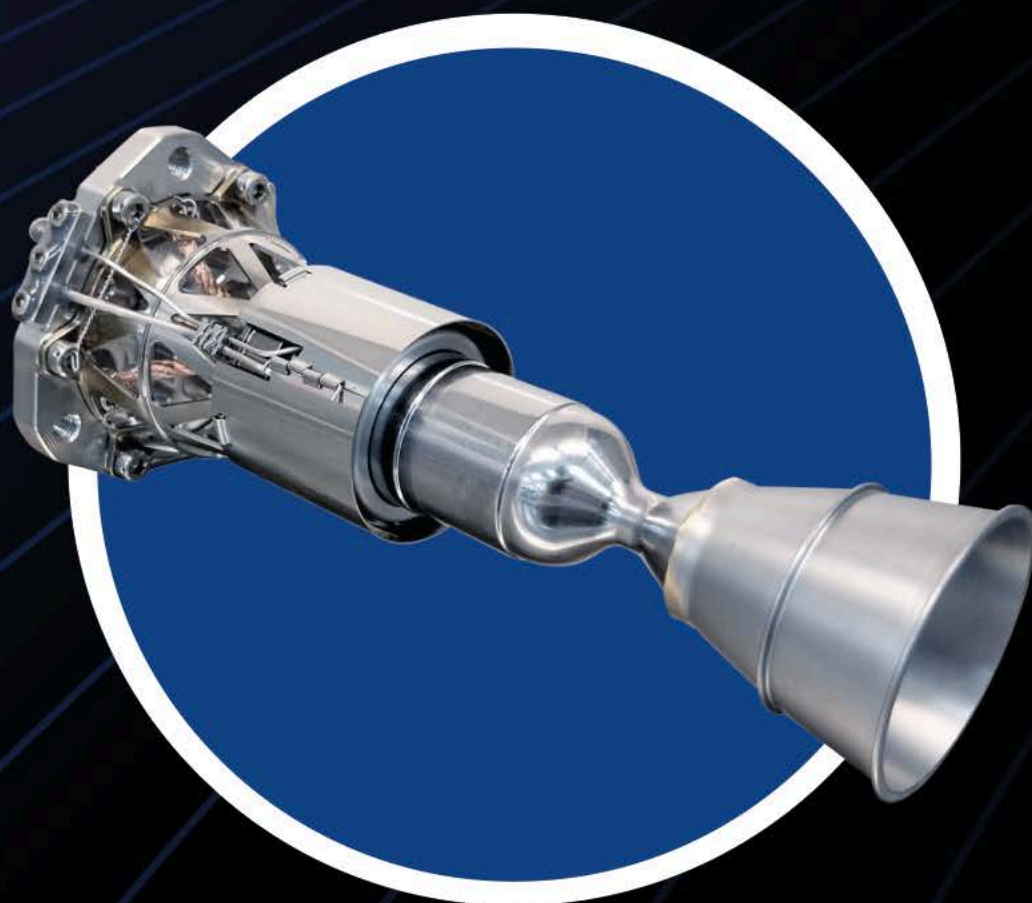


22 N HPGP THRUSTER

High Performance Green
Propulsion (HPGP).



ECAPS

ECAPS AB

Visiting Address

Torggatan 15, 171 54 Solna, Sweden

www.ecaps.se

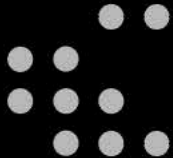
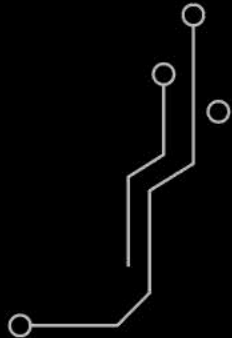
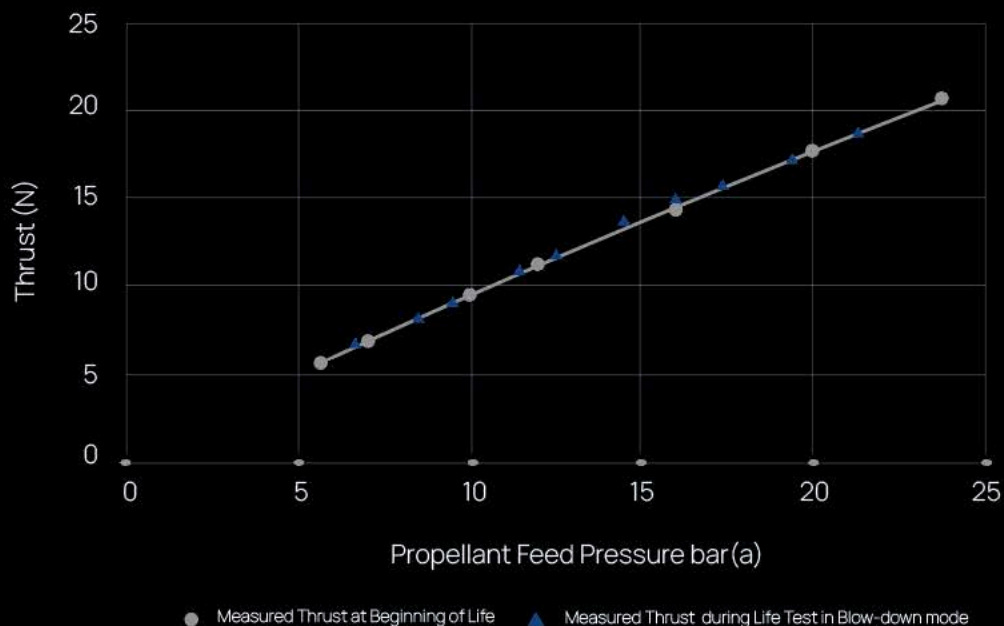
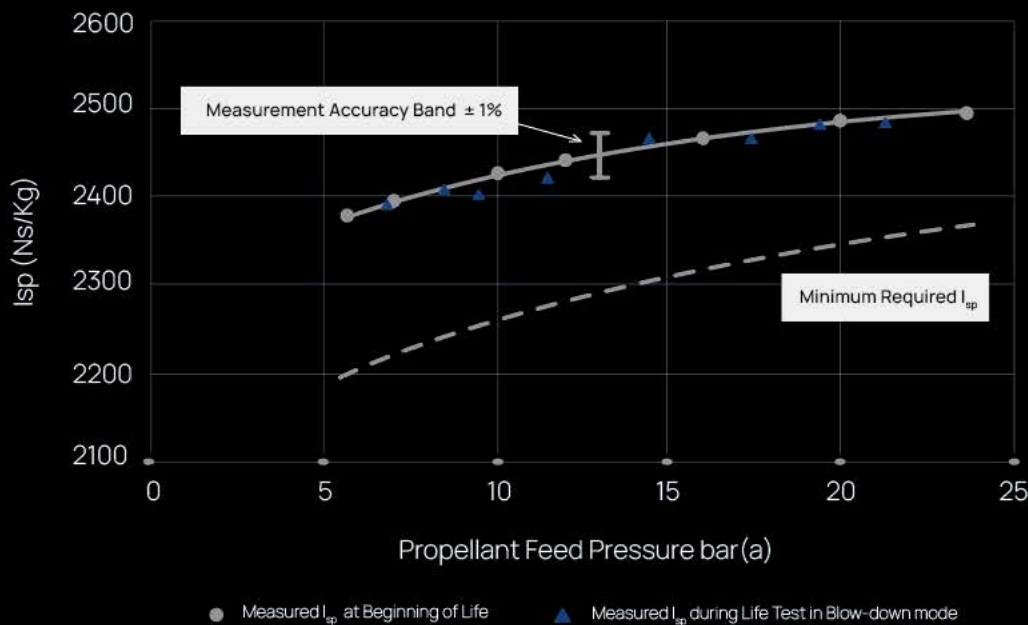
DESCRIPTION

The 22 N High Performance Green Monopropellant (HPGP) thruster enables high thrust delta-V maneuvers and AOCS for small-medium class spacecraft and reaction control for large spacecraft.

The thruster operates on LMP-103S low-toxicity monopropellant with 1.3X the density-Isp of hydrazine. Additionally, LMP-103S offers up to 72%⁽¹⁾ cheaper spacecraft loading as compared to hydrazine, reducing the total life-cycle cost of the mission.

The propellant is long term storable (>15 years) and enables “fuel at the factory” for rapid response satellites. Over 31 satellites are presently flying HPGP technology.

PERFORMANCE CHARACTERISTICS



OPERATING PARAMETERS

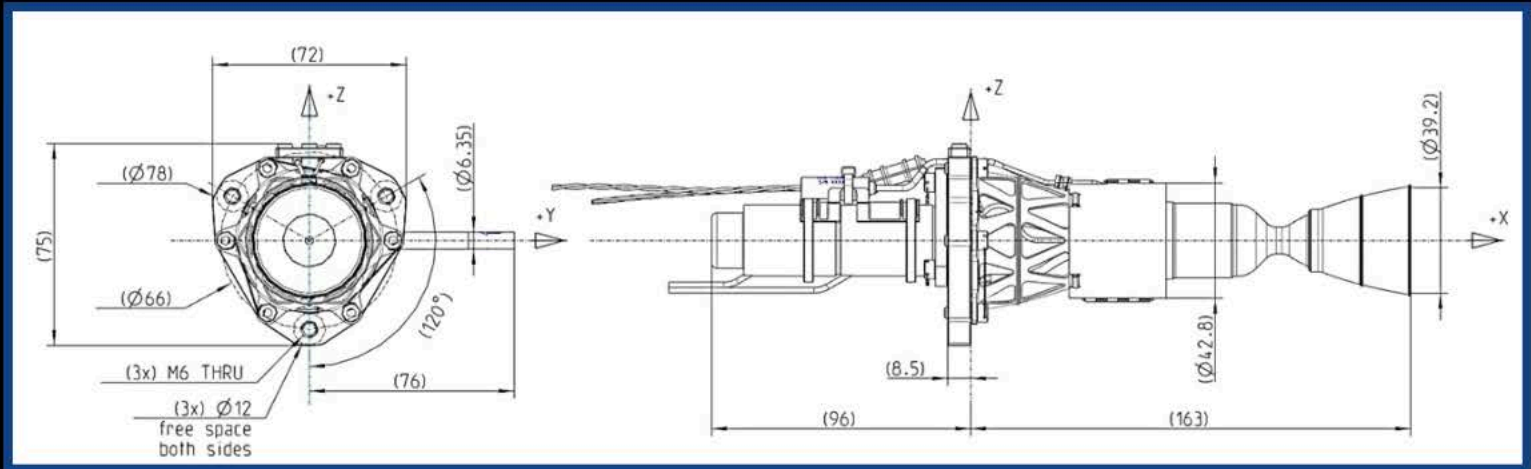


Propellant	LMP-103S
Propellant Density	1242 kg/m ³
Propellant Temperature	10 to 50°C 5 to 60°C (qual)
Burst Pressure	> 86 bar (1247 psi)
Proof Pressure	36 bar (522 psi)
Operating Pressure	5.5 to 24 bar (32 to 348 psi)
Thrust (Steady State)	22 to 5.5 N
Specific Impulse (Steady State)	> 2380 to 2280 Ns/kg (> 242 to 232 s)
Propellant Throughput	53 kg Qualification target: 150 kg
Total Impulse, Ns	125 kNs Qualification target: > 345 kNs
No. pulses	> 25000 Qualification target: > 65000
Min. Impulse Bit	< 0.35 Ns
Thermal Cycle Life	750
Pulse Length	20 ms to 38 minutes
Preheat Time (nominal)	45 min
Preheat Power	32 to 76 W (47 W nominal)
Heater Voltage	24-34 VDC
Opening Response Time	15 ms
Closing Response Time	10 ms
Valve Seats	Dual
Valve Power (Steady State)	1.6 W per coil
Valve Pull-in Voltage	≤ 20.6 VDC
Valve Hold Open Voltage	10 ±1 VDC
Valve Drop-Out Voltage	1.5 to 8 VDC
Internal Leakage	≤ 1x10 ⁻⁵ scc/s at 26 bar GHe
External Leakage	≤ 1x10 ⁻⁶ scc/s at 26 bar GHe
Thruster Mass (incl. harness)	1.1 kg

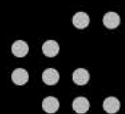


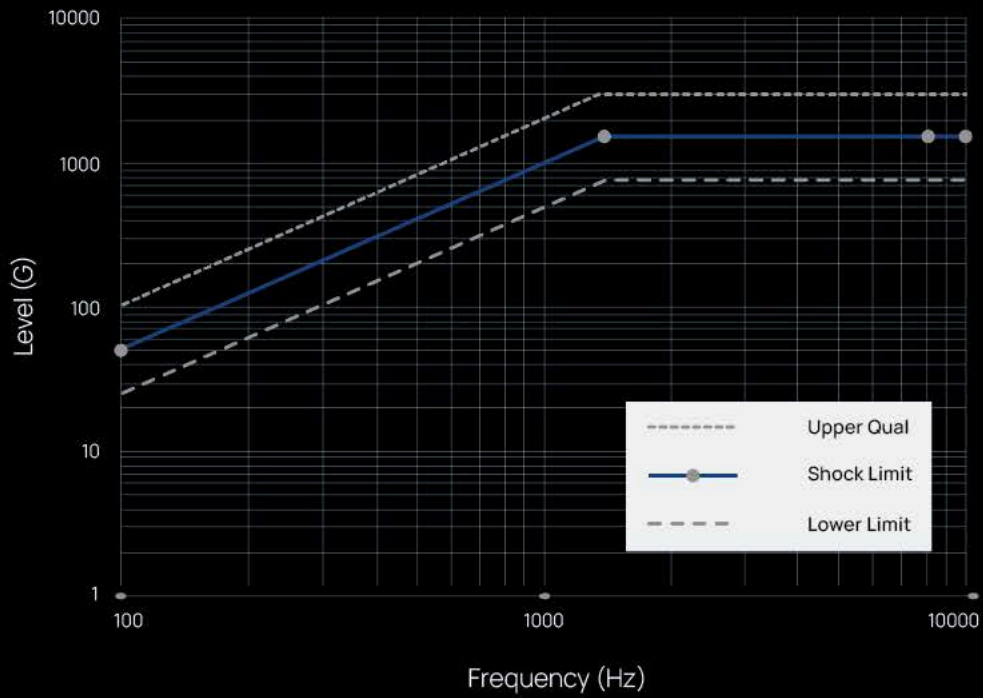
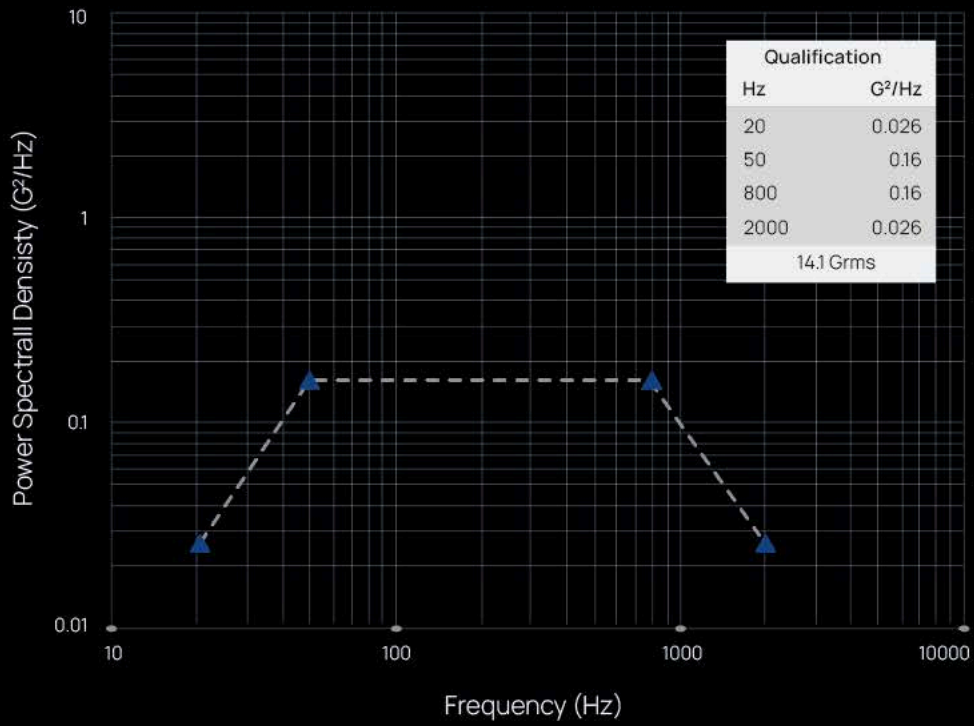
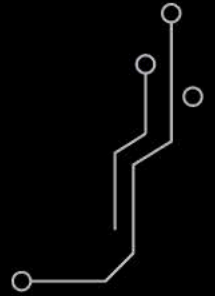
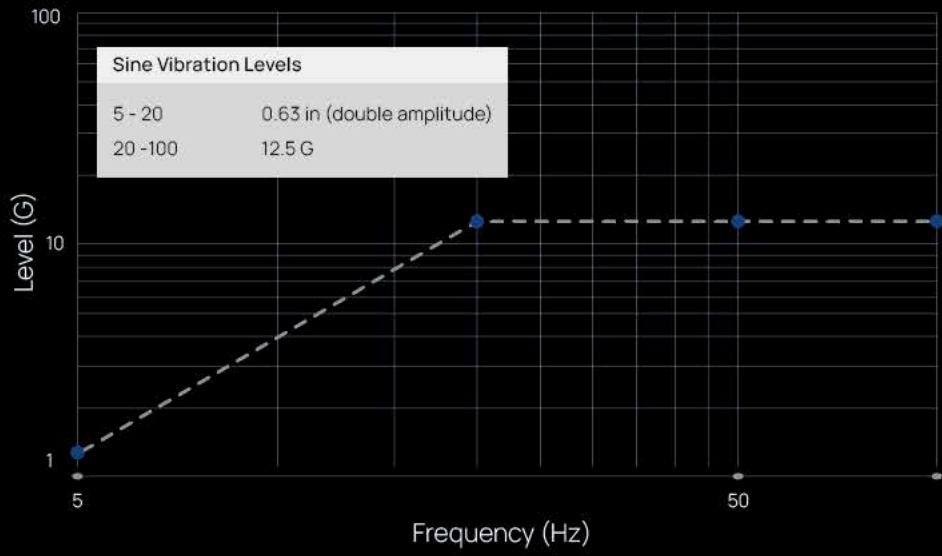


MECHANICAL INTERFACE



Lead	AWG	Wire Color	Description
1	24	Blue Stripe	Valve 1+
2	24	White Stripe	Valve 1-
3	24	Blue Stripe	Valve 2+
4	24	White Stripe	Valve 2-
5	26	Amber	Thermocouple 1+
6	26	Amber	Thermocouple 1-
7	26	Amber	Thermocouple 2+
8	26	Amber	Thermocouple 2-
9	26	Amber	Heater 1+
10	26	Amber	Heater 1-
11	26	Amber	Heater 2+
12	26	Amber	Heater 2-





ECAPS

ECAPS. ALL RIGHTS RESERVED

Sales Contact:

info@ecaps.se