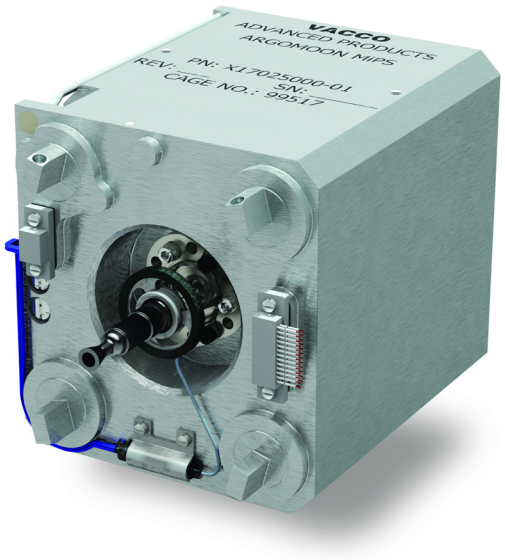
ArgoMoon Propulsion System

X17025000

SPACE

VACCO's hybrid Micro Propulsion System (MiPS) combines green mono-propellant and cold gas propulsion in a single system to provide attitude control and orbital maneuvering. Argotec's ArgoMoon program utilizes VACCO's hybrid propulsion system to achieve high levels of total impulse in a limited volume to accomplish the mission requirements.



The VACCO ArgoMoon MiPS is approximately 1.3U plus the tuna can volume and uses one 100 mN green thruster to develop 783 N-sec of total impulse that provides 56 m/s of delta-V for a 14 kg CubeSat. The four 25 mN cold gas thrusters develop 72 N-sec of total impulse. Each thruster independently operates to perform both delta-V and ACS maneuvers through an integrated microprocessor controller.

Features

- Integral titanium fluid control manifold and low friction, space grade valves
- All welded tank construction contains 420 g of propellant and 215 g of pressurant
- Integrated microcontroller and RS-422 interface enable high-level commands from the host spacecraft
- Low power with < 1 Watt for health and status monitoring
- Easily configured for different mono-propellants
  - ADN green (LMP-103S)
  - Air Force green (AF-M315E)
- Performance density: 692 N-sec/L

Operating Parameters

Propellant	LMP-103S & R134a
MDP	16.8 Bar (244 psia)
Proof Pressure	25.2 Bar (366 psia)
Burst Pressure	42.1 Bar (610 psia)
Internal Leakage BOL	<1X10^{-4} sccs GHe
Internal Leakage EOL	<1.0 x10^{-3} sccs GHe
External Leakage	<1.0 x 10^{-6} sccs GHe
Operating Temp	10°C to 40°C
Non-Operating Temp	-34°C to 60°C
Total Impulse @10°C	72 & 783 N-s
Dry Mass	1.430 kg Max
Wet Mass 95% Fill @ 10°C	2.065 kg Max
Operating Voltage For Telemetry	9.0-12.6 V_{DC}
Operating Voltage For Heaters & Valves	9.0-12.6 V_{DC}
Standby Power	1 W Max
Warmup Power	20 W Max
Thruster Operating Power	4.3 W Max
Data Interface	RS-422

Performance characteristics are based on customer requirements. As such, they are not representative of component capabilities or limitations.

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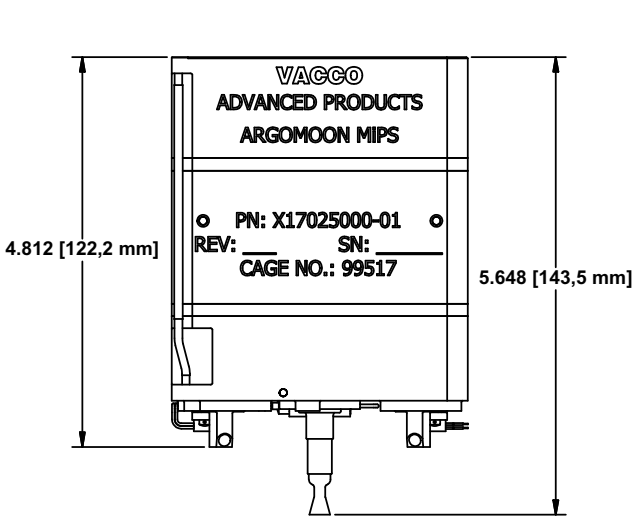
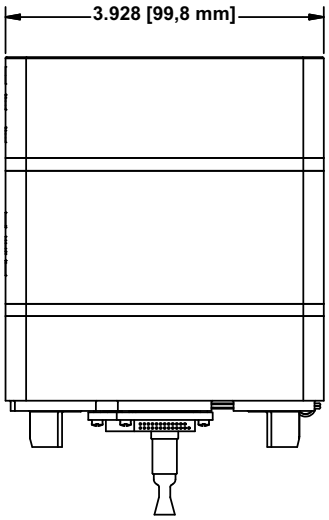
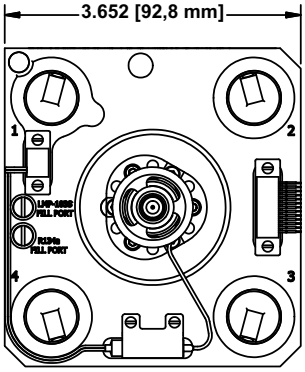
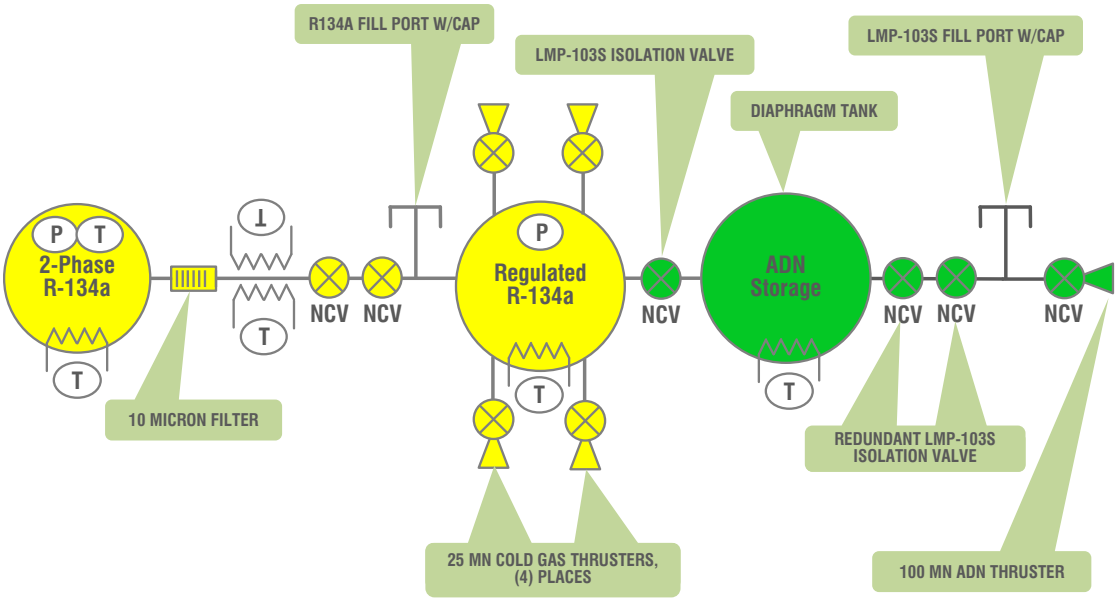
Envelope Drawing







Flow Schematic



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