

### End-Mounted Standard MiPS

The VACCO End-Mounted Standard Micro-Propulsion System (MiPS) is a low-cost, cold gas propulsion system designed to utilize the “tuna can” volume in CubeSat P-POD deployment systems.

Using Chemically Etched Micro System (ChEMS™) technology, VACCO has produced a complete propulsion system including propellant storage, pressurization, distribution, thrusters, and controller. This simple, highly integrated design uses a self-pressurizing liquid propellant that is expelled as a gas.

The 0.25U MiPS is capable of 93 N-Sec of total impulse with up to 1,860,000 firings, MiPS brings true propulsion capabilities to micro-spacecraft for formation flying, attitude control and velocity change (delta-v).



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### Features

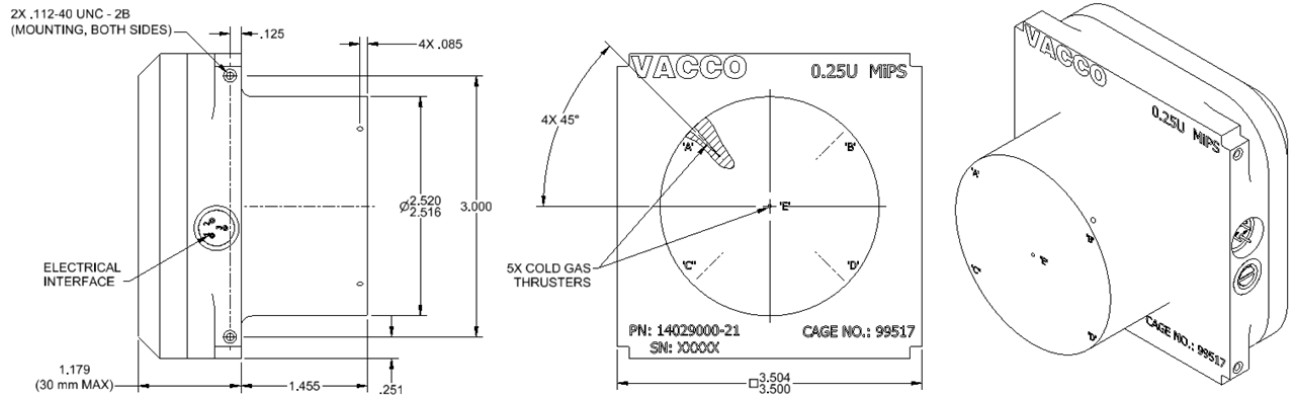
- Five thrusters for pitch, yaw, roll and delta-v
- 10 mN thrust
- Up to 1,860,000 minimum impulse firings
- Frictionless valves
- Inherently safe, non-toxic R134a propellant
- All-welded aluminum alloy construction
- Light weight
- Minimal re-entry hazard
- Smart system with integral controller:
  - Simple RS422 digital interface
  - Integral sensor suite
  - Closed-loop vector pointing
  - Closed-loop thrust vector control

### Operating Parameters

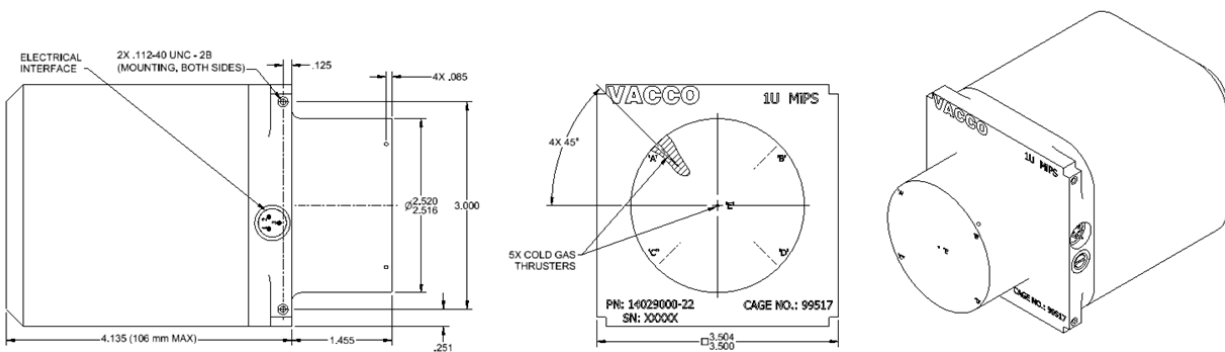
Nominal Thrust.....	10 mN @ 20°C	Vibration.....	16 Grms
Specific Impulse.....	40 sec	Minimum Impulse Bit.....	0.05 mN-sec
Total Impulse.....	93 to 312 N-sec	Operating Voltage.....	9.0 to 12.6 vdc
Internal Leakage.....	<1 x 10 <sup>-3</sup> sccs GHe	Mass (Including Propellant).....	676 to 1420 grams
External Leakage.....	<1 x 10 <sup>-6</sup> sccs GHe	Stand-By Power.....	0.25 watts
Operating Temperature.....	0°C to +60°C	Maximum Steady-State Power.....	10 watts

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

0.25 U



1U



Spec List

Part Number	Size	Depth (mm)	“Wet” Mass (grams)	Total Impulse (N-sec)
X14029003-11	0.25U	30	676	93
X14029003-14	0.5U	56	924	166
X14029003-17	0.8U	86	1221	254
X14029003-19	1U	106	1420	312