

### CuSP Propulsion System

VACCO’s cold gas Micro Propulsion System (MiPS) provides attitude control and orbital maneuvering. SWRI’s CuSP program utilizes VACCO’s cold gas system to achieve highly reliable propulsion while serving as a space weather station.

**Performance density: 231 N-sec/L**



The VACCO CuSP MiPS is approximately 0.3U in volume and uses four 25 mN cold gas thrusters to develop 69 N-sec of total impulse that provides 8.8 m/s of delta-V for an 8 kg CubeSat. Each thruster independently operates to perform both delta-V and ACS maneuvers through an integrated microprocessor controller.

SPACE

### Features

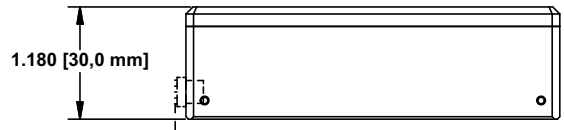
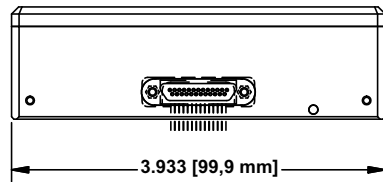
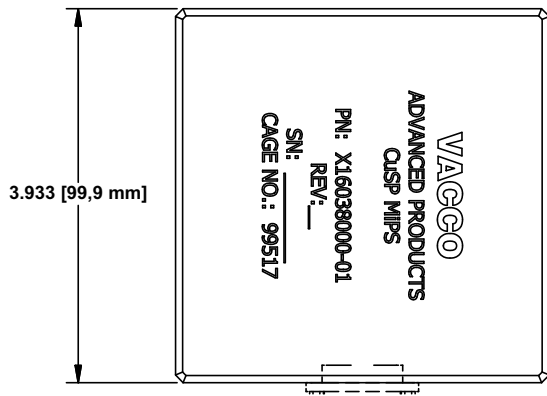
- Integral aluminum fluid control manifold and low friction, space grade valves
- All welded tank construction contains 177 g of propellant
- Integrated microcontroller and RS-422 interface enable high-level commands from the host spacecraft
- Low power with < 1 Watt for health and status monitoring
- Easily configured for different propellants
  - R-134a
  - R-236fa
- Performance density: 231 N-sec/L

### Operating Parameters

Propellant.....R236fa	Total Impulse @10°C.....69.4 N-s
MDP.....6.89 Bar (100 psia)	Dry Mass.....0.513 kg Max
Proof Pressure.....10.34 Bar (150 psia)	Wet Mass 95% Fill @ 10°C.....690 g Max
Burst Pressure.....17.24 Bar (250 psia)	Operating Voltage.....9.0-12.6 V <sub>DC</sub>
Internal Leakage.....<0.5 scch R-236fa	Standby Power.....1 W Max
External Leakage.....<1.0 x 10 <sup>-6</sup> sccs GHe	Warmup Power.....12 W Max
Operating Temp.....-15°C to +55°C	Thruster Operating Power (4 thrusters).....11 W Max
Non-Operating Temp.....-24°C to +55°C	Data Interface.....RS-422

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

Envelope Drawing



Flow Schematic

