

Standard Propulsion System

X19039000

VACCO's Standard Micro Propulsion System (MiPS) provides a highly reliable, intelligent, attitude and delta-V system for CubeSat and SmallSat applications. Components and manufacturing methods used are the product of 57 years of space experience including two systems that powered both highly successful Mars Cube One (MarCO) CubeSats.

The Standard MiPS features four 25mN cold gas thrusters. Bolt-on nozzles facilitate a wide range of fixed thrust directions. The modular design can be scaled from 0.4U/98 N-sec to 1.38U/489 N-sec. Custom versions are also available.

**Performance Density:
245 to 354 N-sec/L**



SPACE

Features:

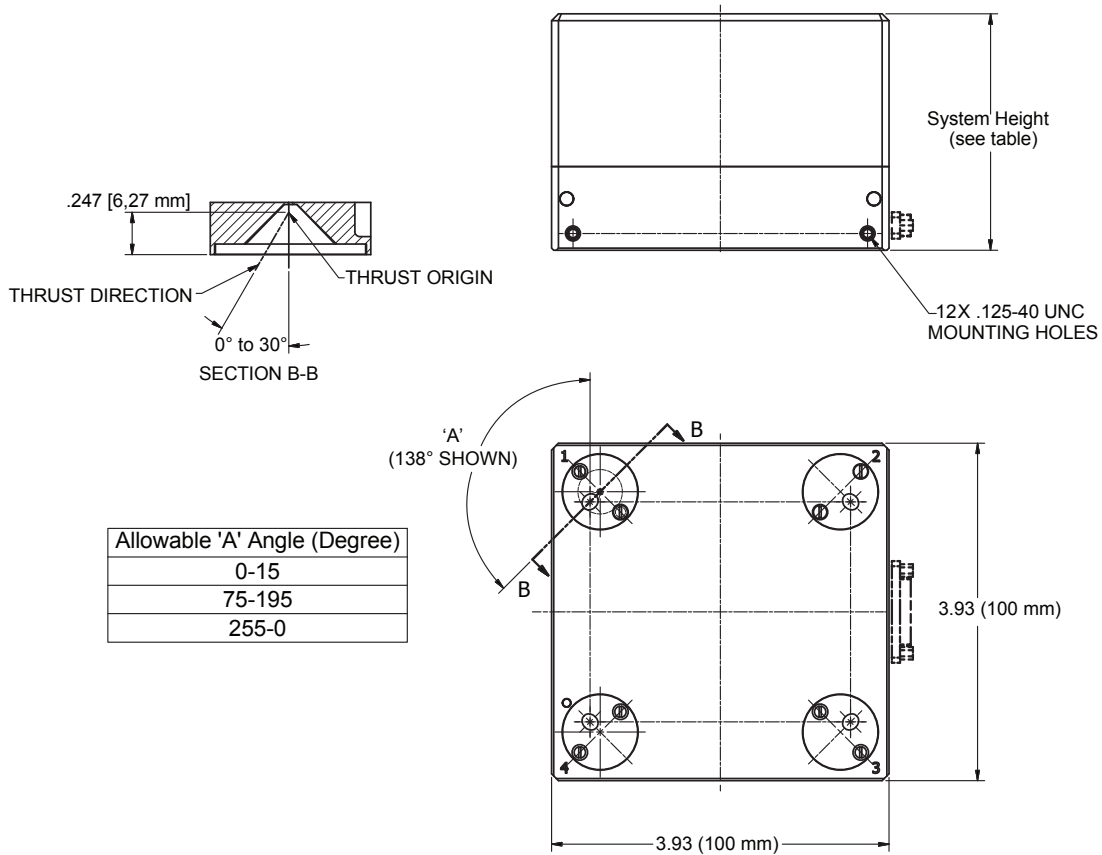
- Range Safety Friendly design (<100 psia)
- Leak before burst pressure boundary
- Integral Microcontroller with RS422 digital interface
- Radiation resistant components with integral shielding
- Robust, sophisticated flight-proven software
- Accepts unregulated input power
- <1W required for communication and health monitoring
- 12W peak power
- Frictionless space quality valves
- All-welded, high strength structure
- Fully manifolded components (no tubing)
- "B" thrust angles from 0° to 30°
- Performance density 245 to 354 N-sec/L

Operating Parameters:

Propellant.....	R236fa	Total Impulse.....	See "Performance Table"
MEOP/MDP.....	6.89 bar (100 psia)	Dry Mass.....	See "Performance Table"
Proof Pressure.....	10.34 bar (150 psia)	Propellant Mass.....	See "Performance Table"
Burst Pressure.....	17.24 bar (250 psia)	Operating Voltage.....	9.0 to 12.6 VDC
Internal Leakage.....	<0.5 scch R236fa	Standby Power.....	1 W Max.
External Leakage.....	<10 x 10 ⁻⁶ sccs GHe	Warmup Power.....	12 W Max.
Operating Temperature.....	-15°C to +55°C	Thruster Operating Power (4 thrusters).....	12 W Max.
Non-Operating Temperature.....	-30°C to +55°C	Data Interface.....	RS422

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

Envelope Drawing:



Performance Table:

Part Number	System Height	Tank Volume	Propellant Liquid Mass	Isp	Total Impulse	MiPS Dry Mass
Dash No.	(mm)	(cc)	(g)	(Sec)	(N-Sec)	(grams)
X19039000-01	40	210	249	40	98	553
X19039000-02	70	457	552	40	217	703
X19039000-03	100	700	851	40	334	861
X19039000-04	138	1021	1246	40	489	957

Flow Schematic:

