NEA Scout Propulsion System

X16056000

SPACE

VACCO's cold gas Micro Propulsion System (MiPS) provides attitude control and orbital maneuvering. NASA's NEA Scout program utilizes VACCO's cold gas system to achieve highly reliable propulsion while observing an asteroid.

The VACCO NEA Scout MiPS is approximately 2U in volume and uses six 25 mN cold gas thrusters to develop 500 N-sec of total impulse that provides 37 m/s of delta-V for a 14 kg CubeSat. Each thruster independently operates to perform both delta-V and ACS maneuvers through an integrated microprocessor controller.

Performance density: 322 N-sec/L

Features

- Integral aluminum fluid control manifold and low friction, space grade valves
- All welded tank construction contains 1,280 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: 322 N-sec/L

Operating Parameters

Propellant	R236fa
MDP	6.89 Bar (100 psia)
Proof Pressure	10.34 Bar (150 psia)
Burst Pressure	13.79 Bar (200 psia)
Internal Leakage	<0.5 scch R-236fa
External Leakage	<1.0 x 10^{-6} sccs GHe
Operating Temp	-10°C to +55°C
Non-Operating Temp	-24°C to +55°C
Total Impulse @10°C	500 N-s
Dry Mass	1.263 kg Max
Wet Mass 95% Fill @ 10°C	2.540 kg Max
Operating Voltage	9.0-12.6 V_{DC}
Standby Power	1.1 W Max
Warmup Power	55 W Max
Thruster Operating Power (4 thrusters)	9 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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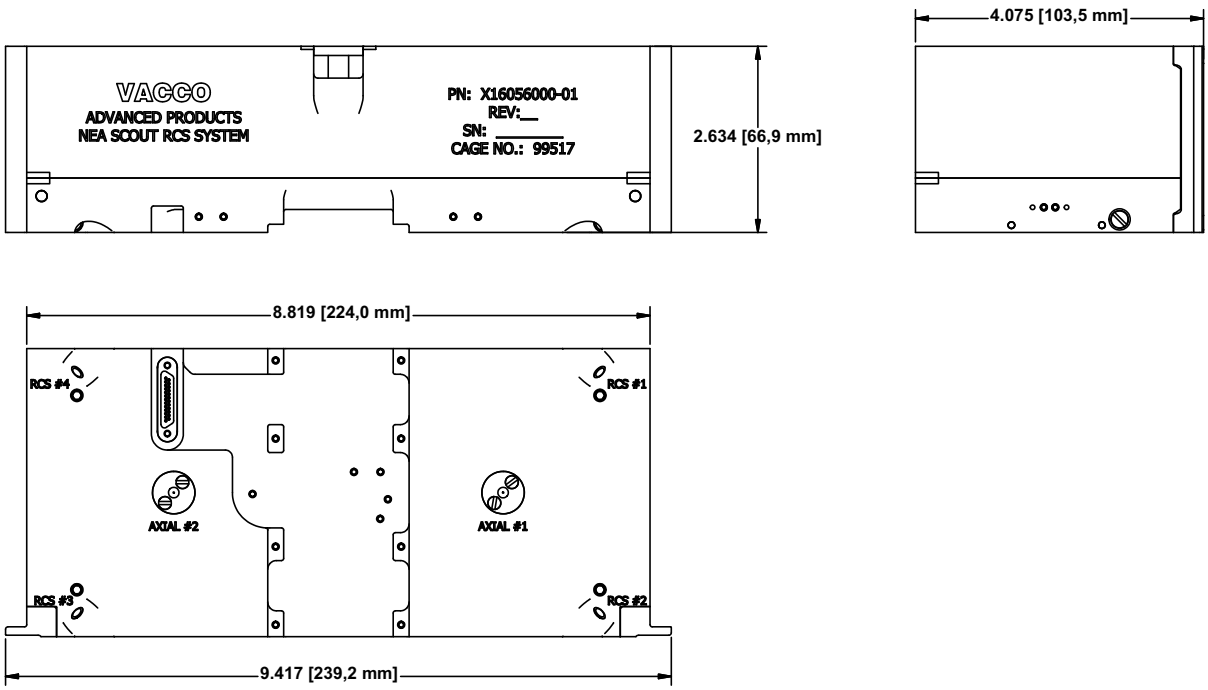
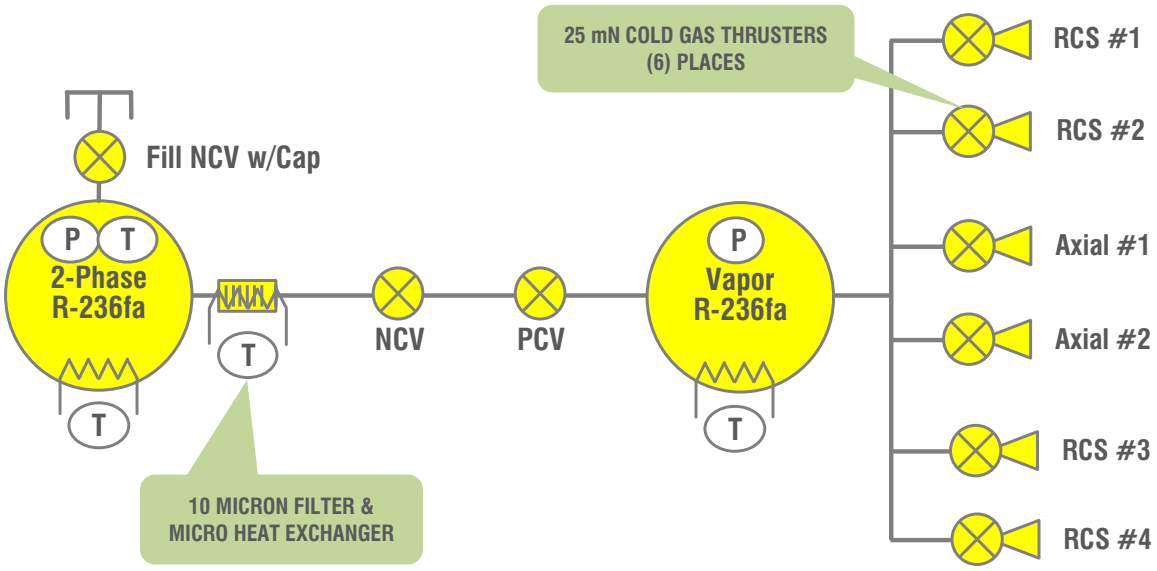
Envelope Drawing



Flow Schematic



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