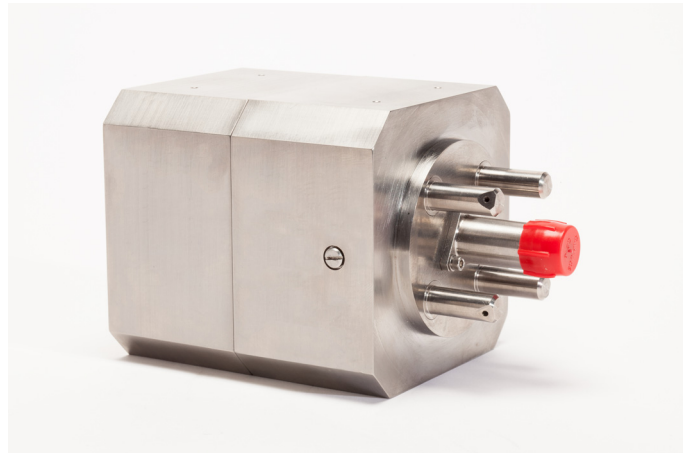


Hybrid ADN Delta-V / RCS System

The VACCO / ECAPS CubeSat Hybrid ADN Delta-V / Reaction Control System is a high performance micro propulsion system (MiPS) specifically designed for CubeSats.

The Hybrid ADN MiPS is a self-contained sub-system that can be scaled from 0.5U to >1U. A single axial high-thrust, high specific impulse (I_{sp}) ADN thruster delivers up to 1,036 N-sec of total impulse using only integral propellant.

The smart feed system automatically provides closed-loop thrust vector control during delta-v burns. Reliability is ensured through simplicity of design, welded titanium construction and frictionless valve technology.



SPACE

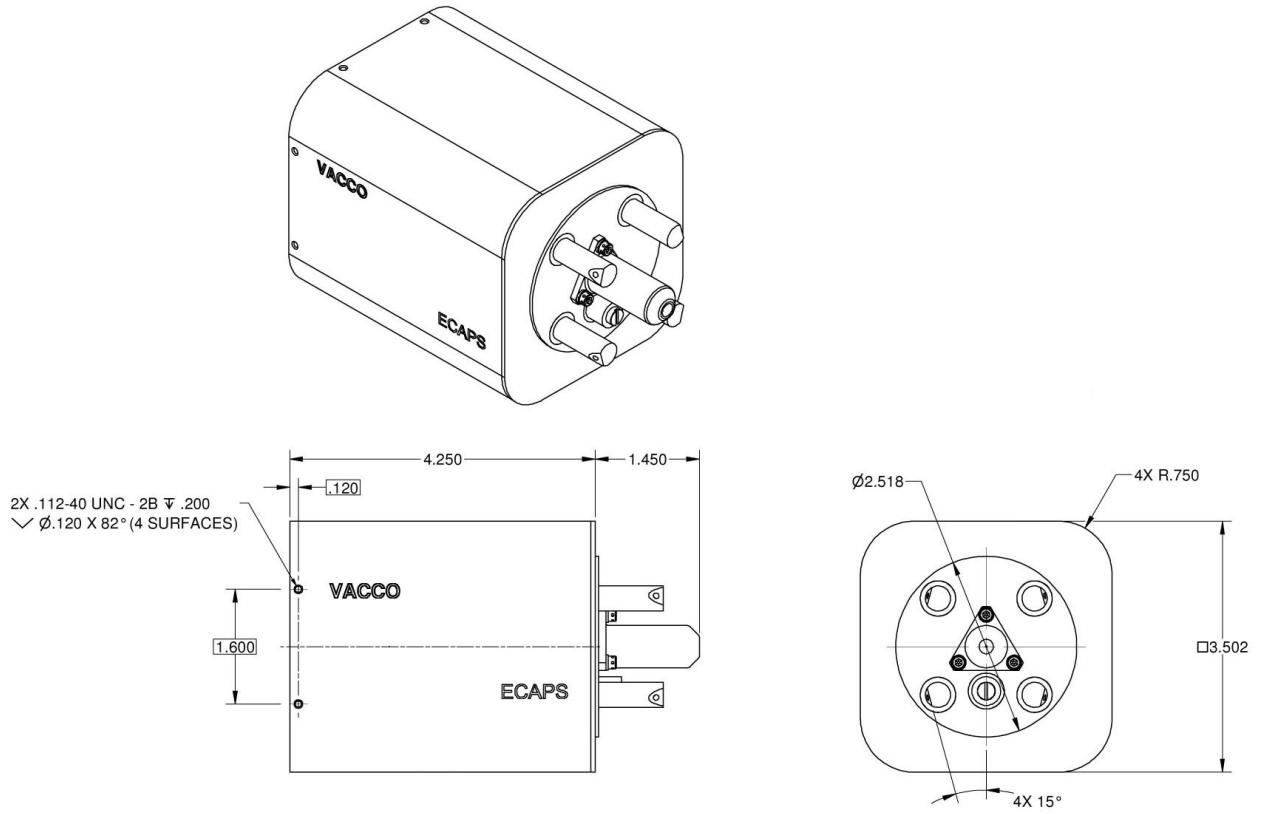
Features

- Smart, self-contained propulsion system
- 1,036 N-sec total impulse / 206 m/s delta-v assuming 5.3 kg CubeSat
- One 100 mN ECAPS ADN thruster
- Four 10 mN cold gas ACS thrusters
- Low Power:
 - <15 watts during hot-fire
 - <0.055 watts in standby mode
- Reliable, frictionless valves

Operating Parameters

Max Operating Pressure	244 psia	Cycle Life	900,000 firings
Proof Pressure	366 psia	Total Delta-V Impulse	1,036 N-sec
Burst Pressure	610 psia	Total RCS Impulse	69 N-sec
Delta-V Thrust	100 mN	RCS Minimum Impulse Bit	<0.1 mN/sec
ACS Thrust	10mN	Operating Voltage	9 to 12.6 vdc
Internal Leakage	3.0 scc/hr	Dry Mass	1,093 grams
External Leakage	1.0×10^{-6} scch	ADN Propellant Mass	528 grams
Operating Temperature	0°C to +50°C	ACS Propellant Mass	176 grams
Non-Operating Temperature	-10°C to +60°C	Total Mass	1,797 grams
Vibration	23 Grms		

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



Electrical Schematic

30 AWG 40" MIN LG	WHITE (+)	RS422_Y	
30 AWG 40" MIN LG	GREEN (-)	RS422_Z	
30 AWG 40" MIN LG	BLUE (+)	RS422_A	
30 AWG 40" MIN LG	YELLOW (-)	RS422_B	
26 AWG 40" MIN LG	RED (+)	9 - 12.6 V	
26 AWG 40" MIN LG	BLACK (-)	GND	

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