



PERFORMANCE MATRICES FOR CUA PROPULSION SYSTEMS (JULY 2022)

WARM GAS SYSTEMS[†]:

PARAMETER / PROPULSION SYSTEM	CHIPS (0.54U)	PUC (0.35U)	MVP (0.93U)	UNITS
Thruster System Package Volume	540	350	926	cm ³
Available Tank Volume	280	219	309	cm ³
Propulsion Technology	Micro-resistojet	Micro-plasma discharge	Micro-resistojet	–
Propellant	R236fa (R134a opt.)	SO ₂	Polymer Fiber (Delrin)	–
Power Draw when Firing (Avg. Duty Cycled)	20 (10)	15 (10)	39 (13)	W
Specific impulse	56	70	66	sec
Mass Flow Rate	30	6.5	7.0	mg/s
Thrust	16	4.5	4.5	mN
Total impulse	176	184	280	N-s
Vol. Impulse (total impulse / system volume)	326	526	302	N-s/liter
Propellant Mass	329	268	433	g
Dry Mass	750	450	622	g
Propulsion System Wet Mass	1,079	718	1,055	g
Delta-V capability (for 4 kg s/c Wet Mass)	47	48	74	m/s
ACS Capability	Yes (6 DOF)	No	No	m/s
Maximum continuous thrust time (rest time)	10 (10)	20 (10)	3 (7)	min
TRL	6	6	6	–

HIGH TOTAL IMPULSE SYSTEMS[†]:

PARAMETER / PROPULSION SYSTEM	MPUC (1.5U)	MPUC (2U)	FPPT (1.7U)	UNITS
Thruster System Package Volume	1,500	2,000	1,719	cm ³
Available Tank Volume	770	1,220	360	cm ³
Propulsion Technology	Monopropellant		Pulsed Plasma Thruster	–
Propellant	H ₂ O ₂ -Ethanol		Teflon Fiber	–
Nominal Power Draw	3		32 (@ 1 Hz pulse rate)	W
Capacitor Bank Energy	N/A		32	J
Specific impulse	180		3,200	sec
Mass Flow Rate	100		0.0053	mg/s
Thrust	160		0.17 (@ 1 Hz pulse rate)	mN
Total impulse	1,550	2,460	24,000	N-s
Vol. Impulse (total impulse / system volume)	1,030	1,230	14,100	N-s/liter
Propellant Mass	862	1,366	780	g
Dry Mass	1,600	1,850	2,250	g
Propulsion System Wet Mass	2,462	3,116	3,030	g
Delta-V capability (Propulsion Wet Mass + 10 kg)	159	259	2,550	m/s
TRL	4 (est. 6 by Q2 2023)		5 (est. 6 by Q3 2022)	–

[†]Alternate sizing options available for different mission needs with non-recurring engineering (NRE)

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