Chemical Propulsion Systems for Small Satellites

T4i chemical propulsion systems are based on highly stabilized hydrogen peroxide and are targeted to low cost platforms.

Highly Stabilized Hydrogen Peroxide allows the reduction of safety issues and costs during handling and operations. Thanks to our transportable concentration unit, it can be also concentrated in situ. eliminating any transportation issues related with propulsive grade hydrogen peroxide (>85% concentration).

Depending on customer needs T4i offers three types of propulsion options:

- Mono-propellant motor
- **Hvbrid** motor
- Bi-propellant motor

Common features of these propulsion units are:

- **Low cost**: main target are small low cost platforms.
- Highly customizable: being internally developed at T4i, the engine can be fully reconfigured depending on specific needs of the platform.
- Green: all the combinations are green, non-toxic and noncarcinogenic, providing minimum environmental impact.
- **Restartable / throttleable**: all the systems provide these options to perfectly match with mission requirements.
- All-in-one: sharing the same oxidizer, the monoprops can be combined with the other propulsion units to provide comprehensive propulsion package.



Hydrogen Peroxide Monopropellant

Specifications

Thrust 10 - 500 N

Burning time > 100 sec

Specific Impulse > 150 sec

Propellant combination 90-95% Hydrogen Peroxide

Multiple restarts ves

Throttleability 1:5

5 TRL

Time to market 1 year

orbit raising, re-positioning, station-**Applications** keeping, de-orbiting, reaction control



Hydrogen Peroxide Hybrid motor

Specifications

Thrust 100 - 1000 N

Burning time < 100 sec

Specific Impulse > 280 sec

90-95% Hydrogen Peroxide -**Propellant combination**

Plastics

Multiple restarts yes

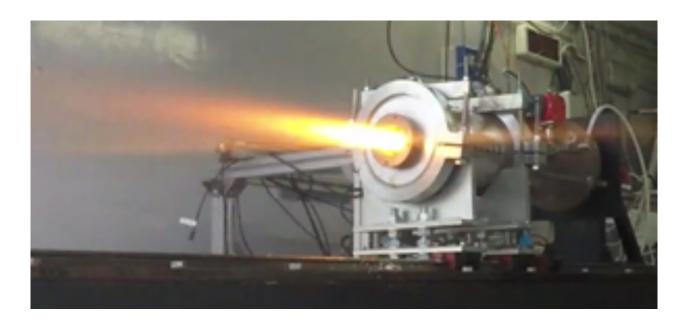
Throttleability 1:5

TRL 5

Time to market 1 year

orbit raising, re-positioning, **Applications**

de-orbiting



Hydrogen Peroxide Liquid Motor

Specifications

Thrust 100 - 1000 N

Burning time > 100 sec

Specific Impulse > 280 sec

Propellant combination 90-95% Hydrogen Peroxide - Diesel

Multiple restarts ves

Throttleability 1:5

TRL 4

Time to market 2 years

orbit raising, re-positioning, **Applications** station-keeping, de-orbiting





Motors Main Features

Toxicity No

Storability Yes, >5 years

Safety High

Concentration 90-95%. Tailored to customer

requirements

Transportation Motor can be filled in situ. In-situ

concentration option available to

avoid transportation issues of highly

concentrated hydrogen peroxide

Handling Standard chemical protection suits,

no SCAPE suits

Throttleability 1:5

Restartability Yes

Cost Low

Customization Yes

Contacts

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