

# XENON ION Propulsion System (XIPS)

## Thrusters and Power Processing Units

Stellant has been a world leader in development and production of Thrusters, Xenon Ion Propulsion Systems (XIPS®) for more than fifty years. Stellant currently has more than 152 25cm ion thrusters in orbit.



25cm XIPS® Thruster



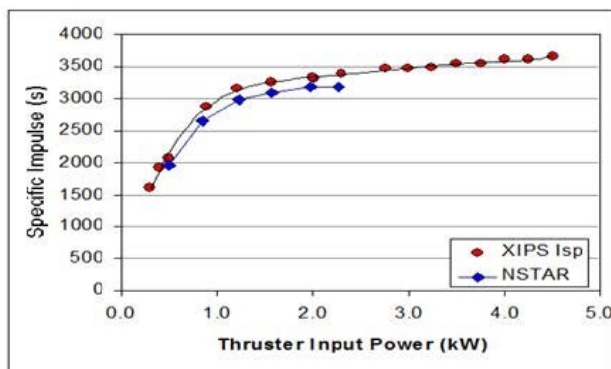
30cm XIPS® Thruster

### KEY FEATURES

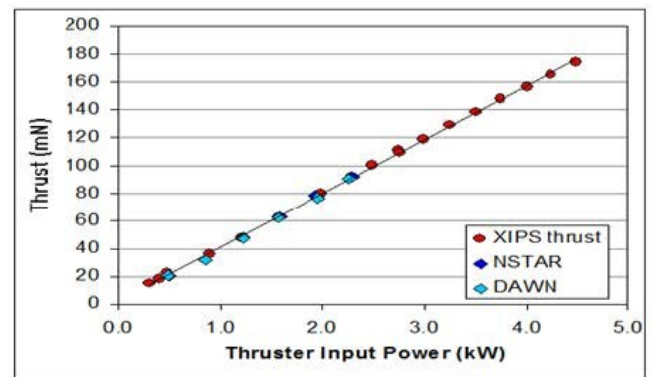
- Space-qualified, proven reliability
- Produces thrust 10x more efficiently than conventional chemical combustion
- Reduces spacecraft on board propellant requirement by 90%
- Unmatched efficiency and precision in station keeping
- Two operating modes: 25cm
  - High power – (4.5 kW) for Orbit Raising
  - Low power – (2.2 kW) for Station Keeping

Thruster	8 cm	13 cm	25 cm	25 cm	30 cm	30 cm
Input Power to Thruster (W)	250-500	450	2000	4250	2274	480
Thrust Efficiency (%)	50% @ 500W	48	69	71	61	40
Specific Impulse (s)	1500-3000	2390	3400	3550	3280	1950
Thrust (mN)	6-14	18	79	165	92	19
Xenon Mass Flow (mg/s)	0.3-0.45	0.71	2.36	4.71	2.86	1.02
Acceptance Test Temp (°C)	-40 - +160	-100 - +162	-40 - +183	-40 - +183	-98 - +143	-98 - +143
Weight (kg)	3 - 3.5	6.2	13.7	13.7	8.2	8.2

### 25 cm Thruster Extended NSTAR Performances



Isp (s)



Thrust (mN)

# XENON ION Propulsion System (XIPS)

## Thrusters and Power Processing Units

The Power Processing Unit (PPU) controls the thruster and interfaces with the satellite system by taking raw satellite bus power and conditions this power to the power levels needed by the thruster.

The PPU also provides timing and sequencing for thruster on and off commands, performs fault-protection to avoid damage to the thruster and any of the spacecraft components, and provides telemetry for measuring thruster performance and subsystem state of health.



25cm XIPS® PPU



30cm XIPS® PPU




Power Supply	8 cm	13 cm	25 cm	25 cm	30 cm	30 cm
Input Power to Power Supply (W)	250-500	530	2200	4500	2500	540
Efficiency (%)	89	86	92	94	92	89
Input Bus Voltage (V)	28 - 100	49 - 53	97 - 103	97 - 103	80 - 145	80 - 145
Size (cm)	21 x 16 x 21	28 x 20 x 44	21 x 54 x 35	21 x 54 x 35	37 x 49.6 x 8.3	37 x 49.6 x 8.3
Acceptance Test Temp (°C)	-11 - +79	-24 - +71	-11 - +79	-11 - +79	-20 - +55	-20 - +55
Weight (kg)	7	14.6	21.3	21.3	14	14

Stellant Systems is a premier manufacturer of critical spectrum and RF power amplification products to the space, defense, medical, science and industrial markets for both domestic and international customers. Stellant has 5 domestic manufacturing facilities and approximately 1,100 employees.

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