

SATELLITE SYSTEMS

# EPsylon

Electric Propulsion System for small satellite missions

# EPsylon

OHB Sweden's inhouse EP system



With over three decades of experience in various Electric Propulsion (EP) solutions, OHB Sweden now presents a highly novel custom inhouse-designed solution for the challenges and trends of today and tomorrow. EPsylon is an Electric Propulsion system for small satellites in a wide power and thrust range serving both the institutional and commercial market.

EPsylon is the perfect solution for larger small satellites (>200kg) who wish to operate an Electric Propulsion system with a large power and thrust range. Its high radiation tolerance provides excellent characteristics for demanding orbits whilst also being highly suitable for reliable and fast de-orbiting, orbit transfer / maintenance and collision avoidance maneuvers. The reliability is further enhanced by a specialized inhouse designed FDIR taking into account all lessons learned from over three decades of experience. EPsylon (consisting of Thrusters, PPU, FCU and Tank) is easy to integrate in your satellite, making it an excellent "plug-and-play" solution for any mission.

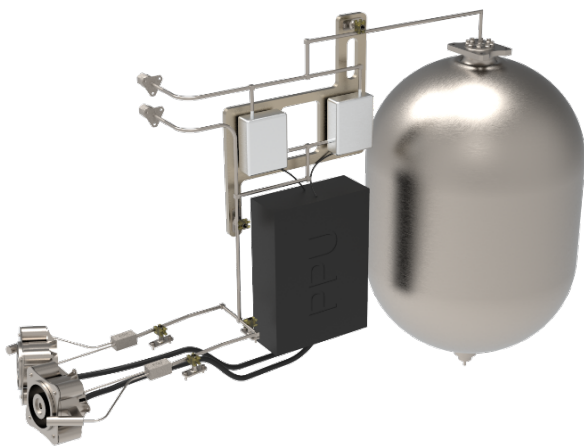
<b>Type</b>	HET/HEMPT
<b>Power</b>	300 to 800W
Supply efficiency	28V unreg. (scalable up to 70V) 92%
<b>Thrust</b>	15mN @340W (system power, HET)
<b>Isp</b>	1200 -1800s
<b>Total impulse</b>	>300 kNs (300W)
<b>I/F</b>	RS-485/CAN
<b>Lead time</b>	<18 months
<b>TID</b>	30kRAD
<b>TRL</b>	8 (Flight heritage from 2025)
<b>Fuel type</b>	Xenon or Krypton

#### Standard services

- Harness design & manufacturing
- Tubing routing & preparation
- Subsystem Integration and test
- High voltage electrical integrity

#### Options

- Xe/Kr leak test
- Xe/Kr loading
- Thruster simulator
- PPU emulator (+ service)
- Spacecraft integration
- 100% European supply chain



OHB Sweden EPsylon system

## Some of our Electric Propulsion achievements



Small Satellite missions based on the OHB Sweden InnoSat platform using low-thrust EP solutions



Interplanetary mission to the moon using a HET system (ESA SMART-1)



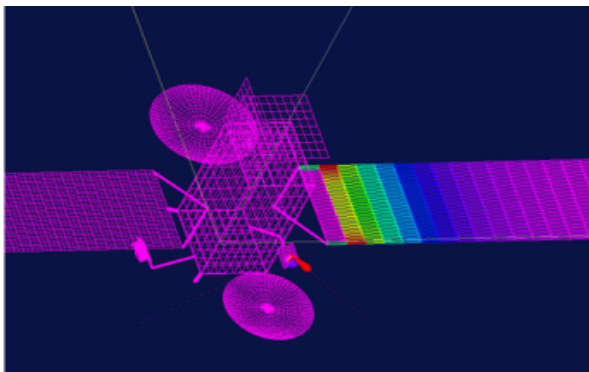
H2Sat ( GEO telecom sat from OHB System) Xenon Loading by OHB Sweden using inhouse developed Xenon Loading Cart. OHB Sweden is responsible for the entire EP-system.



SMART-1 HET thruster during end to end test

## Facilities

Close to Stockholm Arlanda Airport, OHB Sweden features the whole span of facilities used throughout the entire lifecycle of the propulsion subsystem. We can host the support structure to integrate the subsystem, or we can transport it and integrate it at the customer premises. Our team can assist the system team during spacecraft integration, test, conditioning for flight and commissioning in orbit.



Simulation of plume interaction on GEO spacecraft

## AIT philosophy

Our Assembly, Integration and Test team has adopted a low-cost, New-Space approach for several years now, we have optimized every step so that the verification is inherently part of the work sequence. We exercise a tight cleanliness control of gases used. We benefit from

the In-house responsibility over the whole subsystem and the direct interface with all suppliers. Our architectures have elective redundancy based on In orbit experience and continuous consolidation of performance validation. Our GSE operations are compatible with any satellite integration plan.



OHB Sweden main cleanroom in Kista, Stockholm

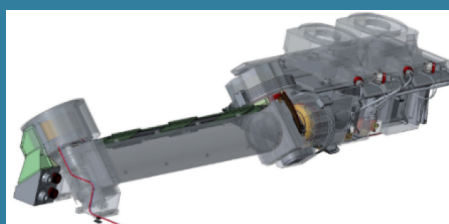
## MODELLING

Because of the long mission duration and the complex nature of the physical Interactions (plasma plume on satellite surfaces, supercritical behavior of Xenon at high pressure) OHB Sweden has developed and validated with their partners a set of tools allowing to predict the effects over the mission life such as erosion, sputtering and accurate gauging.

## But also

## THOR

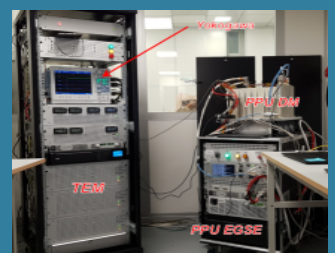
The Thruster Orientation Rudder is the assembly of 5kW HET on a deployable arm allowing the use of the thrusters in orbit raising and station keeping



Early THOR design

## Thruster Simulator

The simulator simulate discharge voltages and currents at the PPU outputs in nominal or abnormal events in order to test the electric propulsion functional chain.



HET simulator & PPU emulator in Fakel SPT-100 configuration



## SATELLITE SYSTEMS

### About OH B Sweden AB

OH B Sweden AB is a subsidiary of OH B SE, one of the three leading space companies in Europe. At OH B SE around 3000 specialists and system engineers work on key European space programs.

OH B Sweden AB specializes in high-tech solutions for satellite systems. These include amongst others small satellites, AOCS and propulsion subsystems.

Certified against ISO 9001:2015

Visit us for more info

### OH B Sweden AB

P.O. Box 1269, SE-164 29 Kista, Sweden

Office: Viderögatan 6, Kista (Stockholm)

Switchboard: +46 8 121 40 100

<http://www.ohb-sweden.se>

[spacesales@ohb-sweden.se](mailto:spacesales@ohb-sweden.se)

