



The Xenon Micro-Pressure Regulator activity was developed under an ESA GSTP contract by Omnidea, Lda in partnership with Omnidea-RTG. The TRL achieved during activity was 4.


Objective

The objective of this activity is to develop a Xenon Micro-Pressure Regulator prototype suitable for mass production. With this principle in mind the Xenon Micro-Pressure Regulator was design to be a low-cost product with a simple manufacture process.

Achievements and status

With the increasing need for smaller and better integrated electric propulsion systems and components, Omnidea developed a mechanical Xenon pressure regulator for use with miniaturized Hall Thrusters.

A functional breadboard was developed with the following specifications.

Micro Pressure Regulator		
	Parameter	Value
	Size	57 mm (length) 37.5 mm Φ
	Mass	< 150 g
	Inlet pressure	190 bar
	Outlet pressure	1.8 bar Adjustable
	Flow rate	Tested up 10 mg/s

Benefits

Highlights of Xenon Micro-Pressure Regulator are:

- Compact regulator envelope
- Low-cost design
- All metal construction.

Next steps

Follow-on technology development activity targeted to develop an EM prototype. and laid out an industrialization plan for the mass production of the regulator.