

HYNEX-1 THRUSTER

PUBLIC DATASHEET

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**This document contains public information about the product.
For detailed information, please request the extended datasheet:
contact@ISPTech.space**

About the Product

Building on years of green propellant research at DLR's Institute of Space Propulsion, ISPTech brings low cost, reliable, and high performance propulsion to commercial and institutional markets.

HYNOX-1 is a thruster in the 1 N (0.22 lbf) thrust range using nitrous oxide (N_2O) and ethane (C_2H_6). An optimized injector and cooling design allows for thermal steady-state operation of the thruster and reproducible, high performance over a wide range of operating conditions. HYNOX-1 also operates in pulse mode.

Most importantly, HYNOX-1 can be adjusted and optimized for every mission. This includes the thrust level at a given temperature environment, interfaces and operating mixture ratio. The design and functionality were demonstrated in thousands of test firings.

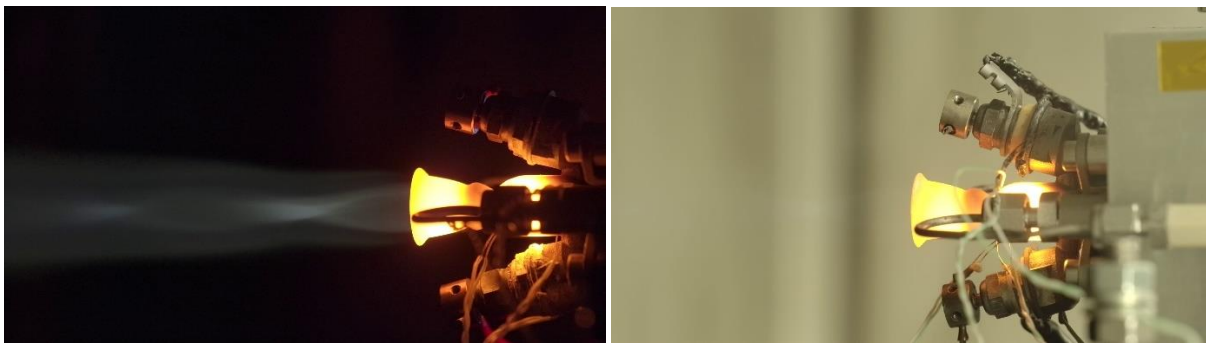


Figure 1: HyNOx-1 during steady-state operation

Your Advantages

- Green, affordable and easily available propellants: $N_2O + C_2H_6$
- Designed for self-pressurized systems
- Thrust level can be controlled by propellant temperature
- Thermal steady-state operation allows for long operation time
- Pulse mode operation allows for precise attitude control
- Thruster operatable in cold gas mode
- ITAR free and REACH compliant
- Cold-start capable

Optimized for Your Mission

- Adjustment of nominal thrust at given inlet conditions
- Adjustment of nominal mixture ratio (ROF) at given inlet conditions
- Adjustment of fluid connection and interfaces
- Health-monitoring instrumentation available



Thruster Specifications

Specifications and Demonstrated Performance

Demonstrated values can be extended / increased when required by customer.

Specification	Value	Comment
Nominal thrust	1.0 N	demonstrated in vacuum
Thrust range	2.6 – 0.5 N	demonstrated in vacuum
Specific impulse	up to 270 s	demonstrated in vacuum
Single pulse firing time	16 minutes	demonstrated in vacuum
Propellant throughput with one thruster	> 3.5 kg	demonstrated in vacuum
Ignitions with one thruster	> 13000	demonstrated in vacuum
Impulse Bit (hot gas)	10 mNs	demonstrated in vacuum
Impulse Bit (cold gas)	< 5 mNs	demonstrated in vacuum
Mass of thruster without flow control valves	< 60 g	depending on mounting interface

For detailed information, please request the extended datasheet.

Interfaces and Power Consumption

Specification	Comment
Mounting	4x M3, details see extended datasheet. Customizable.
Fluid Connection	Standard: 2x 1/16" tubing
Flow Control Valves	2x solenoid valves, single seat, 6 W hit, 0.25 W hold
Ignition	2 glow plugs (cold redundancy), 3.4 W
Health Monitoring Instrumentation	thermocouples and chamber pressure sensor available on request

For detailed information, please request the extended datasheet. Drawings and CAD files are available on request.