HYNOX-22 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, high performance propulsion to commercial and institutional markets.

HYNOX-22 is a thruster in the 22N (5 lbf) thrust range using nitrous oxide (N2O) and ethane (C2H6). 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-22 also operates in pulse mode.

Most importantly, HYNOX-22 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.

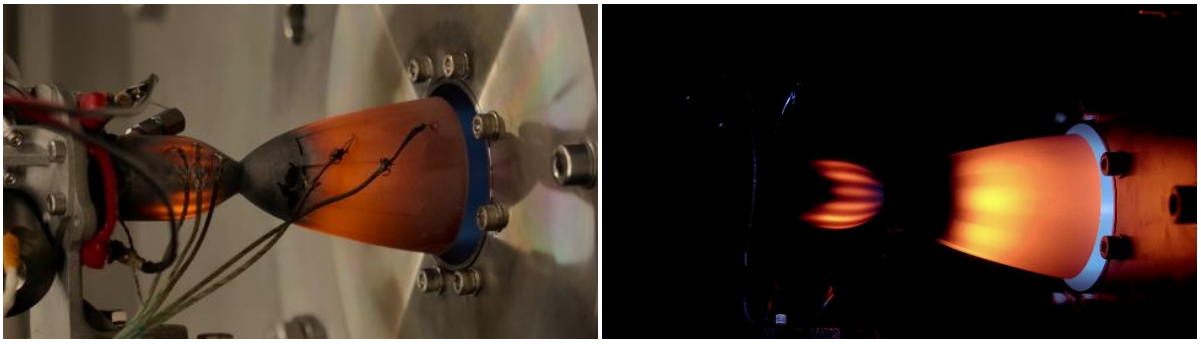

Figure 1: HyNOx-22 during steady-state operation

Your Advantages

- Green, affordable and 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
- High performance, efficiency and reliability
- ITAR free and REACH compliant
- Cold-start capable

Optimized for Your Mission

- Adjustment of nominal thrust at given propellant temperature
- Adjustment of nominal mixture ratio (ROF)
- 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	22 N	demonstrated in vacuum
Thrust range	44 – 7.7 N	demonstrated in vacuum
Specific impulse	> 280 s	demonstrated in vacuum
Single pulse firing time	> 15 minutes	demonstrated in vacuum
Propellant throughput with one thruster	> 60 kg	demonstrated in vacuum
Ignitions with one thruster	> 4000	demonstrated in vacuum
Minimum Impulse Bit (hot gas)	< 1 Ns	demonstrated in vacuum
Minimum Impulse Bit (cold gas)	< 50 mNs	
Mass of thruster with flow control valves	< 570 g	depending on chosen mounting interface

Interfaces and Power Consumption

Specification	Comment
Standard mounting	4x M4, adjustable
Adjustable alignment mounting	available on request
Fluid connection	2x 6mm or 1/8” tubing, adjustable
Flow control	2x solenoid valves, single seat each **20 W hit** (200 ms), **2 W hold**
Ignition	**10 W**
Health monitoring instrumentation	thermocouples and chamber pressure sensor available on request