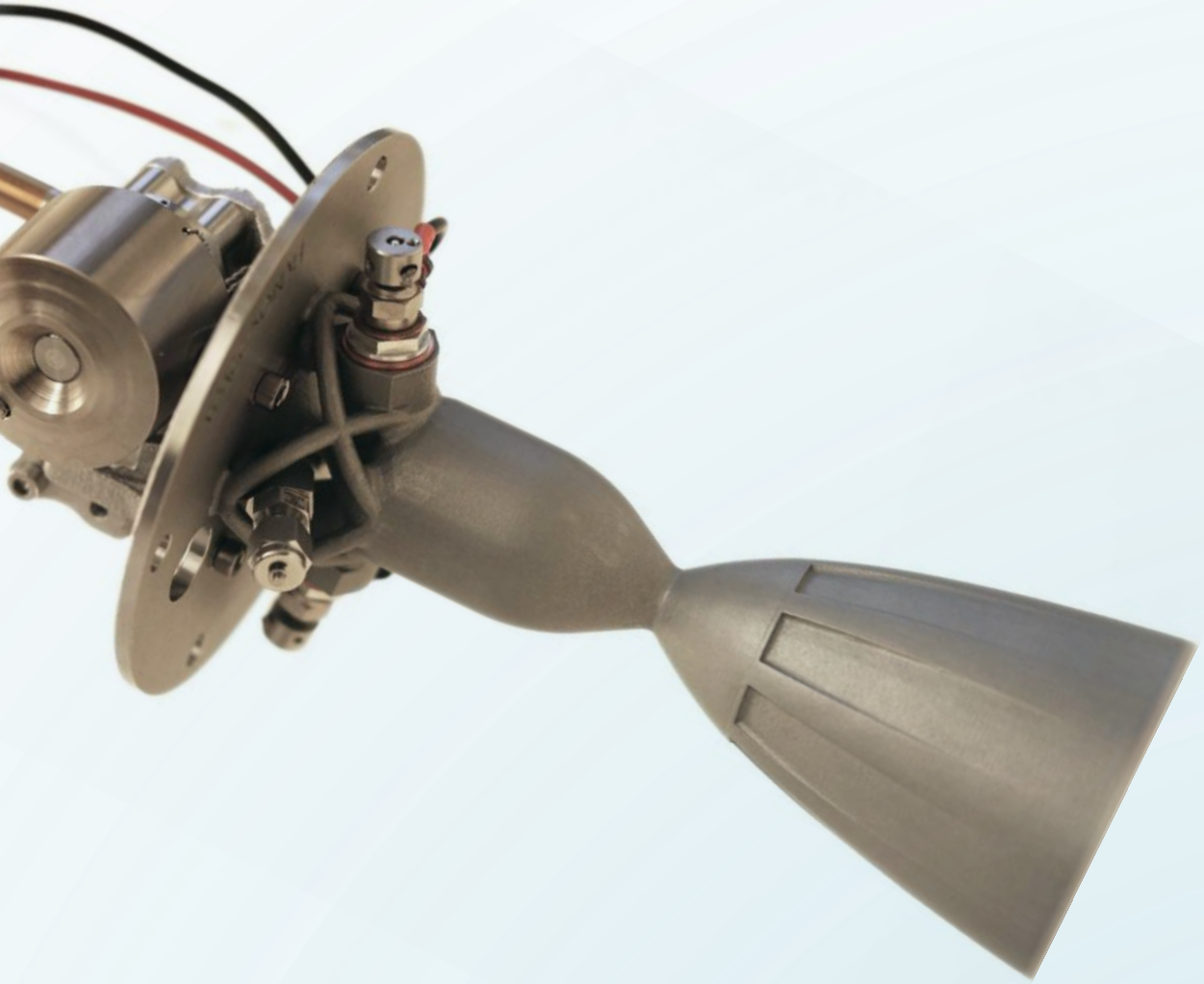
PUBLIC



HYNOX-22 Thruster

Public Datasheet

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

Version: DATASHEET-HYNOX-22-P07
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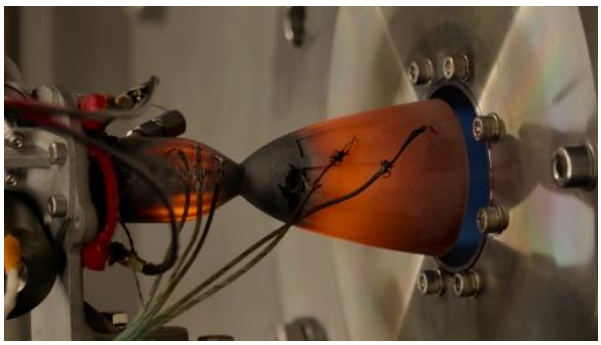
About the Product

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-22 is a thruster in the 22N (5 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-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.



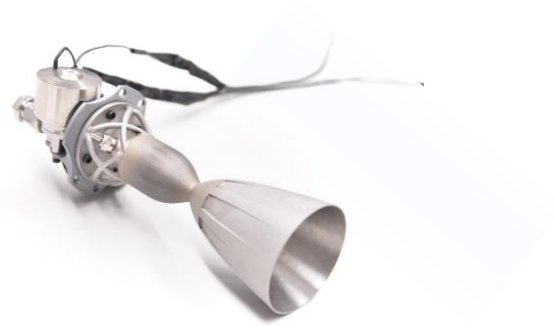


Figure 1: HyNOx-22 during steady-state operation

Your Advantages

- Green, affordable and 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

Customized 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

Overview

Demonstrated Performance

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

Specification	Value	Comment
Nominal thrust	22.0 N	demonstrated in vacuum
Thrust range	44.0 – 7.7 N	demonstrated in vacuum
Specific impulse	up to 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	> 4 000	demonstrated in vacuum
Minimum Impulse Bit (hot gas)	< 1 Ns	demonstrated in vacuum
Minimum Impulse Bit (cold gas)	< 50 mNs	

Specifications

Specification	Value
Mass of thruster Including flow control valves	< 690 g
Ignition	2 glow plugs (cold redundancy), **8.5 W**
Health Monitoring Instrumentation	thermocouples and chamber pressure sensor available on request
Flow Control and Fluid Connection	2x solenoid valves, single seat, **17 W hit, 2 W hold**
Mounting	4x M5, details se extended datasheet.

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