

MicroNewton Proportional Thruster

Model No. VP03



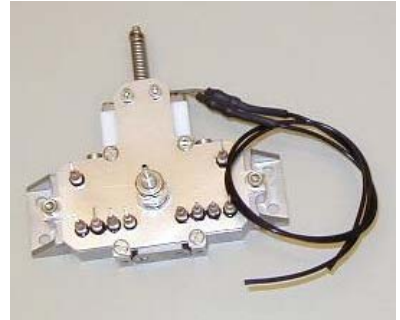
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The VP03-001 is a piezo-actuated thruster capable of providing thrust levels from zero to 1000µN. The normal working fluid is nitrogen, which is heated at the outlet to ensure satisfactory specific impulse values and to eliminate the effects of ambient temperature changes on the accuracy of the thrust.

The thruster can operate in either a closed loop mode, with the position of the valve being monitored and adjusted to meet a changing thrust demand, or in open loop mode when the valve position, and hence thrust level, can be set (and changed) on the basis of ground calibration.

The MPT is also used in the form of a proportional valve, VP02-001, as part of an electronic pressure regulator.

The MPT consists of a stainless steel housing which encloses a piezo actuator, valve, position monitor, and electrical, propellant and mounting interfaces. Downstream of the valve, a heated nozzle produces a specific impulse of over 75s with nitrogen at less than 2W heater power.

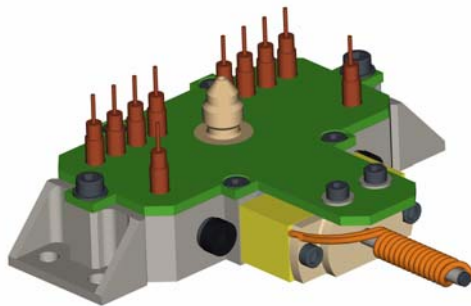


PRODUCT HISTORY

This product is in development.

Performance Characteristics

Operating Media	GHe, GN ₂ , GXe, Dry air
Operational Temperature	-40°C to +70°C
Operating Pressure	1.0 bar
Actuator Voltage	-20 V _{DC} to +150 V _{DC}
Response Time	< 20 ms
External Leakage	1 x 10 ⁻⁴ scc/sec GHe
Flow Range	Leakage level to 2mb/s (Typical)
Thrust Range	0 to 1000µN at 1.0bar inlet pressure
Thrust Sensitivity	0.2µN from 0 to 25µN at 1.0bar 1.0µN from 25µN to 1000µN @ 1 bar
Specific Impulse	> 70 s
Mass	< 300g
Materials	Stainless Steel, Vespel
Pipe Connection	1/8" fitting
Housing Dimensions	87 mm x 16 mm x 91 mm



U.K. Office

Marotta U.K., Ltd.
Cheltenham Trade Park
Cheltenham
Gloucestershire
GL51 8LZ
U.K.

Phone: +44 (0)1242 548780
Fax: +44 (0)1242 224291

Irish Office

Marotta Ireland, Ltd.
20 Airways Industrial Estate
Swords Road
Dublin 17
Republic of Ireland

Phone: +353 (0)1 842 6688
Fax: +353 (0)1 842 6020



sales@marotta.co.uk
www.marotta.co.uk