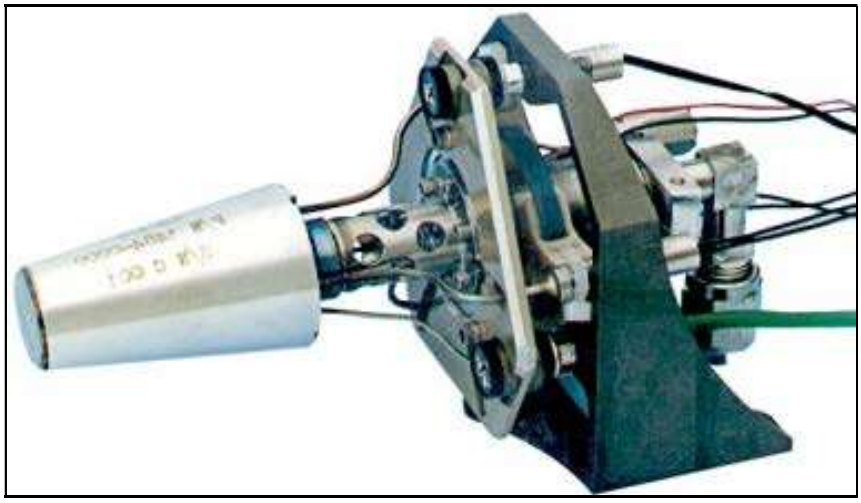
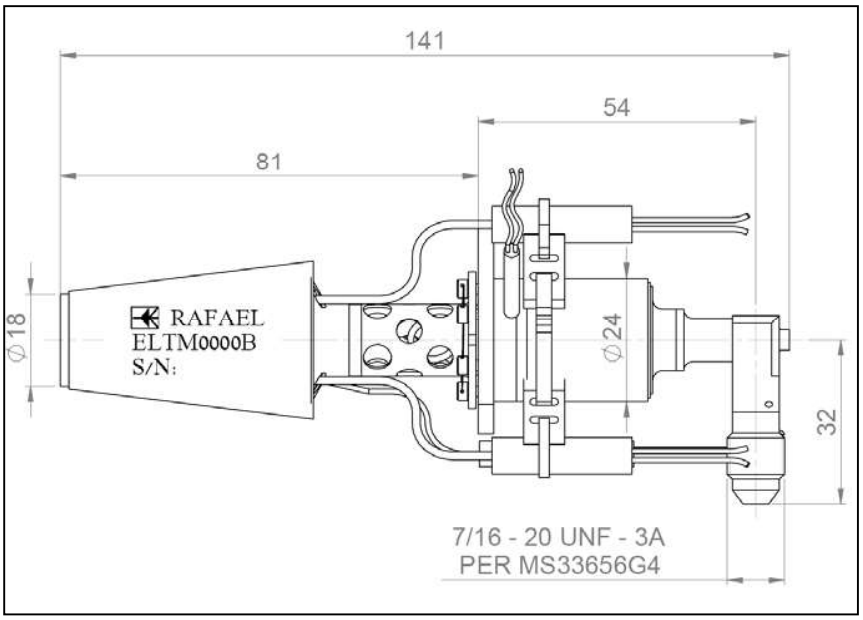
RAFAEL
SMART AND TO THE POINT

Satellite Thruster PART D1

5N Thruster





5N Thruster

5N Thruster Main Characteristics

Parameter	Characteristics
Propellant	Hydrazine (N_2H_4)
Feed Pressure (bar abs)	24 to 5.5 (nominal), tested down to 4.5
Thrust, Steady State (N)	6.1 @ 22 bar to 1.8 @ 5.5 bar
SSF Specific Impulse (sec)	>220 @ 22 bar
	>210 @ 5.5 bar
Minimum Impulse Bit (N-s)	<0.25 @ 5.5 bar & 0.1 sec / 1 sec <0.012 @ 5.5 bar & 0.06 sec / 1000 sec
Nominal Duty Cycle	0.1 sec / 1 sec
Response Time (Hot Pulse)	
Rise Time(ms)	< 65 @ nominal duty cycle & 22 bar
Decay Time (ms)	<100 @ nominal duty cycle & 22 bar
Total Delivered Impulse (N-s)	74,000
Total Number of Pulses	42,000
Leakage	
Internal Leakage (Scc/s GHe)	$<1.0 \times 10^{-4}$ @ 3.5 and 24 bars
External Leakage (Scc/s GHe)	$<2.6 \times 10^{-4}$ @ 24 bars
Temperature	
Operating Temperature	+4°C to 90°C
Non-Operating Temperature	-10°C to 90°C
Flow Control	FCV - single-coil, dual-seat, NC solenoid valve
FCV Operating Voltage (Vdc)	23 to 36
FCV Power (W)	9.2 @ 28 Vdc
Heaters - 3× Single Heaters	
Heater Operating Voltage (VDC)	24 to 32
Heater Resistance (ohms)	260 per each heater
Nozzle Expansion Ratio	50
Total Life (Storage and Flight)	15 years
Inlet Filtration	15 microns absolute
Inlet Interface	MS 33656-4 or welded tube (1/4" or 3/8")
Weight (gr.)	≤ 310 (2000 mm lead wires length)
Heritage	Flight heritage with OFEQ, EROS, SAOCOM and TECSAR programs