



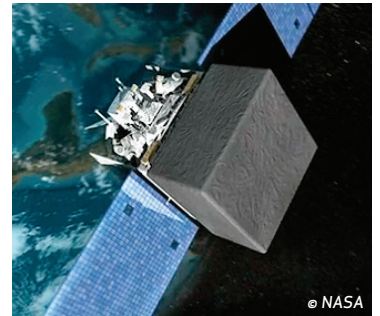
## MONOPROPELLANT THRUSTERS



Moog offers a wide range of monopropellant thrusters suited for spacecraft and flight vehicle attitude control applications. These hydrazine thrusters have a long and successful heritage. Range of applications include; earth observation and communication, space exploration, and missile defense.



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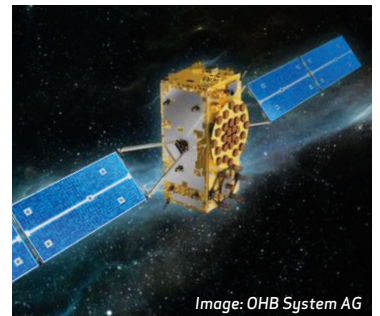
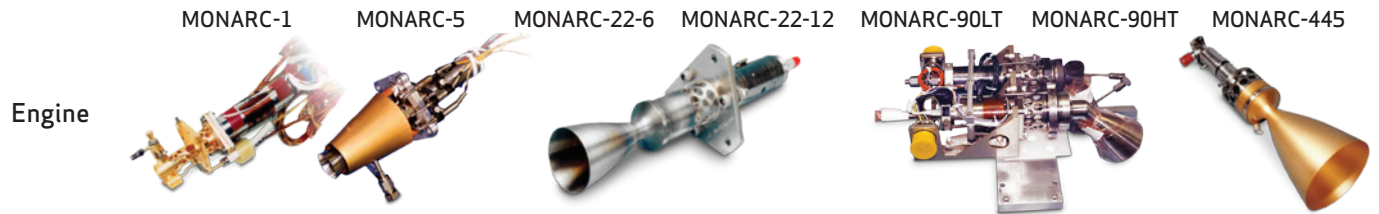


Image: OHB System AG

# MONOPROPELLANT THRUSTERS

## PERFORMANCE CHARACTERISTICS



	MONARC-1	MONARC-5	MONARC-22-6	MONARC-22-12	MONARC-90LT	MONARC-90HT	MONARC-445
Steady State Thrust	0.22 lbf (1N) @275 psia	1.0 lbf (4.5 N) @325 psia	5 lbf (22N) @275 psia	5 lbf (22N) @190 psia	20 lbf (90 N) @ 235 psia	26 lbf (116 N) @ 235 psia	100 lbf (445N) @ 275 psia
Feed Pressure	70 – 400 psia (4.8 – 27.6 bar)	80 – 420 psia (5.5 – 29.0 bar)	70 – 400 psia (4.8 – 27.6 bar)	70 – 400 psia (4.8 – 27.6 bar)	80 – 400 psia (5.5 – 27.6 bar)	80 – 370 psia (5.5 -25.5 bar)	70 – 400 psia (4.8-27.6 bar)
Nozzle Expansion	57:1	135:1	60:1	40:1	40:1	50:1	50:1
Valve Power	18 watts	18 watts	30 watts	30 watts	72 watts	72 watts	58 watts
Mass	0.83 lbm (0.38 kg)	1.08 lbm (0.49 kg)	1.58 lbm (0.72 kg)	1.51 lbm (0.69 kg)	2.47 lbm (1.12 kg)	2.47 lbm (1.12 kg)	3.5 lbm (1.6 kg)
Engine Length/Exit Diam	5.2 in (13.3 cm) / .2 in (0.5 cm)	9.4 in (41.8 cm) / .1 in (2.5 cm)	8 in (20.3 cm) / 1.5 in (3.8 cm)	9 in (22.9 cm) / 1.2 in (5.3 cm)	12 in (30 cm) / 3.3 in (8.4 cm)	12 in (30 cm) / 3.3 in (8.4 cm)	16 in (41 cm) / 5.8 in (14.8 cm)
Specific Impulse	227.5 sec	226.1 secs	229.5 secs	228.1 secs	232.1 secs	234.0 secs	234.0 secs
Minimum Impulse Bit	0.0006 lbf-sec (2.6 mN-sec)	0.0007 lbf-sec (3.1 mN-sec)	0.07 lbf-sec (312m N-sec)	0.12 lbf-sec (526m N-sec)	0.04 lbf-sec (1.8 N-sec)	0.26 lbf-sec (1.16 N-sec)	2.59 lbf-sec (11.52 N-sec)
Total Impulse	25,000 lbf-sec (111,250 N-sec)	138,000 lbf-sec (613,852 N-sec)	120,000 lbf-sec (533,784 N-sec)	263,720 lbf-sec (1,173,085 N-sec)	786,000 (3,500,000 N-sec)	459,100 lbf-sec (2,042,178 N-sec)	1,250,000 lbf-sec (5,600,000 N-sec)
Pulses	375,000	205,000	230,000	160,000	50,000	70,000	12,000

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