

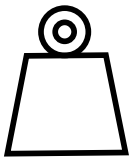
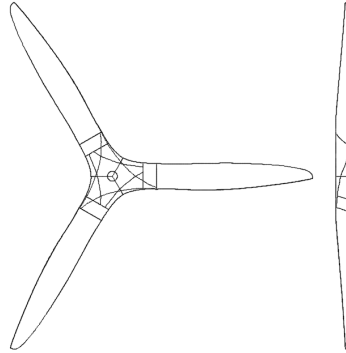


25x12 3B GAS S

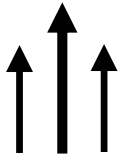
PN:325123

Product sheet

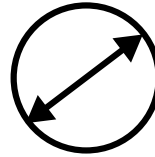
Rev.: 00
2024-04-19



258 g
Mass



33.1 kgf
Max Thrust



25.0"
Diameter



Fixed wing

Engine type:	Gas
Folding/Fixed	Fixed
Rotational direction:	Counter-clockwise
Weight [g]:	258 ± 10.0%
Moment of inertia [kgm ²]:	8.67e-03
Center hole [mm]:	∅ 10
Max drilling diameter [mm]:	40
Mounting:	link to possible patterns
Limit RPM (0.7 Mach at blade tip)	7200
Working temperature [°C]	from -45°C to 65°C
Materials used:	carbon fiber, glass fiber, roving, polyurethane, epoxy
Tests performed:	balancing, visual Inspection, structural integrity (ATO)

Formula used to calculate moment of inertia: $I = \frac{1}{12} \cdot mass \cdot diameter^2$

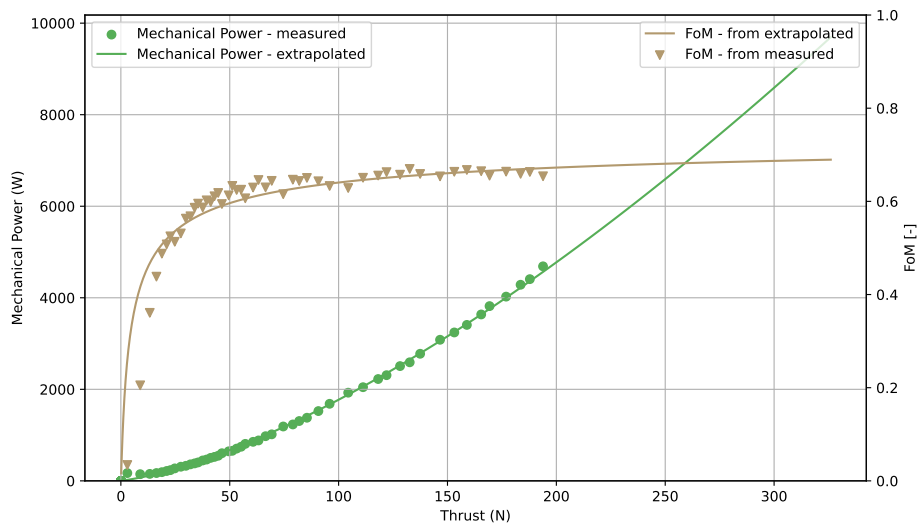
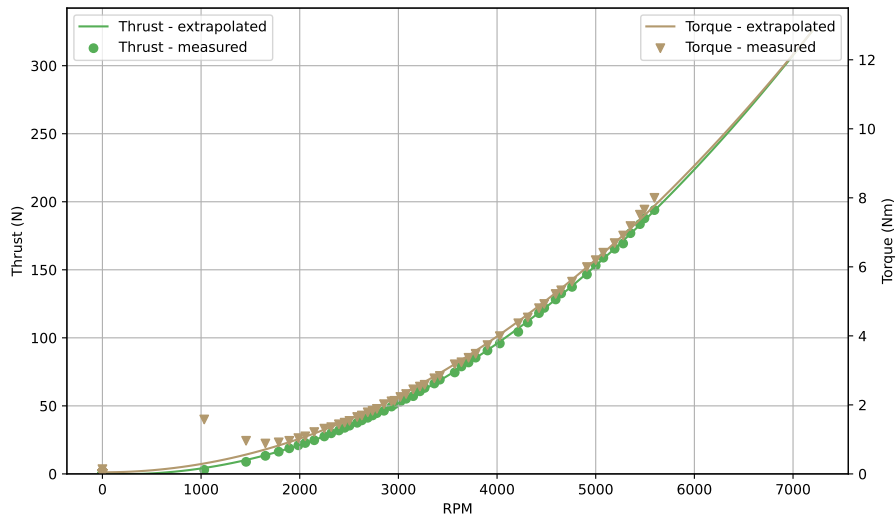


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Measured data

Static test result



$$\text{Thrust (RPM)} = 6.66716e-06 \cdot \text{RPM}^2 + -0.00273 \cdot \text{RPM} + 0.07286$$

$$\text{Torque (RPM)} = 2.48374e-07 \cdot \text{RPM}^2 + -9.42798e-06 \cdot \text{RPM} + 0.04764$$

$$\text{Mechanical power (RPM)} = 3.36239e-08 \cdot \text{RPM}^3 + -5.76381e-05 \cdot \text{RPM}^2 + 0.09952 \cdot \text{RPM} + 0.91482$$

Formulas used to calculate FOM:

$$C_T = \frac{T_0}{\rho AV_T^2}$$

$$C_P = \frac{F_0}{\rho AV_T^3}$$

$$FOM = \sqrt{\frac{2}{\pi}} \frac{C_T^{\frac{3}{2}}}{C_P}$$

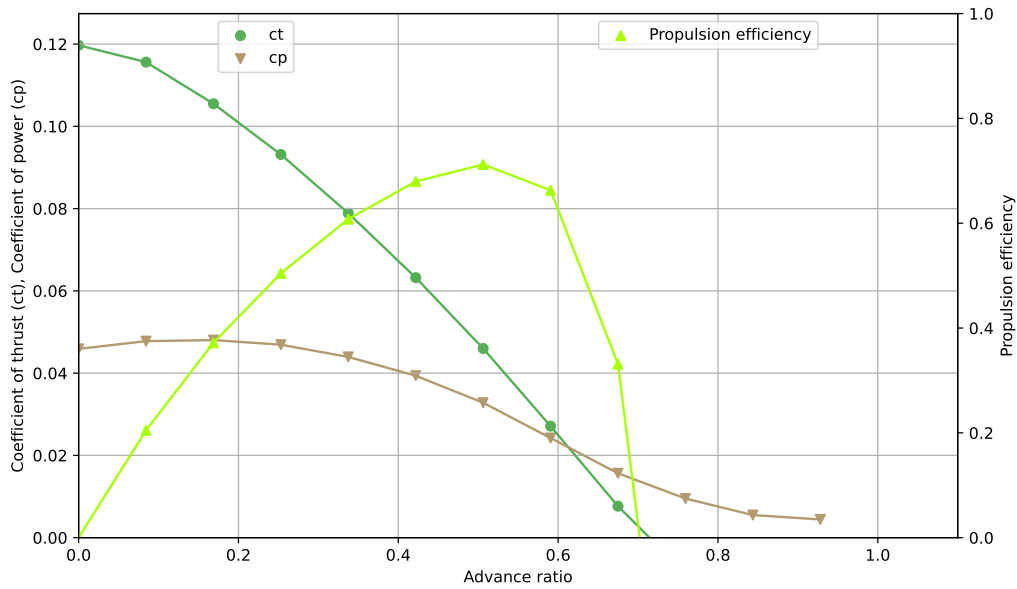


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Simulated data

Dynamic simulation result - at rpm-sim



v_inf	Ct	Cp	Propulsion efficiency	Advance ratio
0.0	0.1197	0.0459	0.0	0.0
5.0	0.1156	0.0478	0.2048	0.0844
10.0	0.1055	0.048	0.3718	0.1687
15.0	0.0932	0.0469	0.5042	0.2531
20.0	0.0789	0.0439	0.6078	0.3375
25.0	0.0632	0.0394	0.6796	0.4218
30.0	0.046	0.0328	0.7121	0.5062
35.0	0.0271	0.0242	0.663	0.5906
40.0	0.0077	0.0157	0.3312	0.6749
45.0	-0.0087	0.0095	-0.6945	0.7593
50.0	-0.0228	0.0055	-3.5025	0.8436
55.0	-0.0344	0.0044	-7.2345	0.928

Formulas for forward flight:

Propulsion efficiency: $\eta = \frac{C_T \cdot J}{C_P}$

Advance ratio: $J = \frac{v}{n \cdot D}$