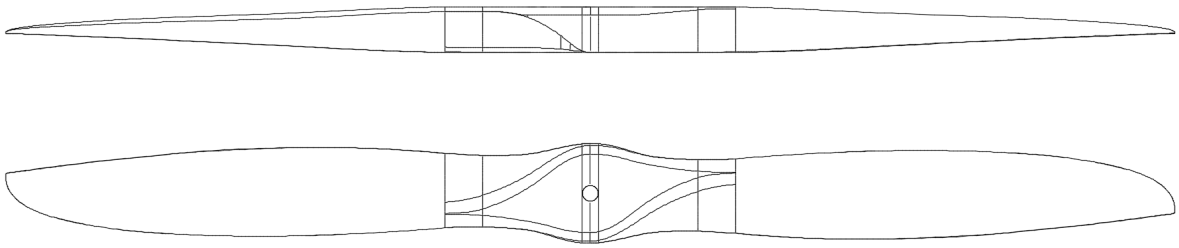
30x13 2B GAS EVO

PN:230136

Product sheet

Rev.: 00
2024-04-19



295 g
Mass

35.0 kgf
Max Thrust

30.0”
Diameter

Fixed wing

Engine type:	Gas
Folding/Fixed	Fixed
Rotational direction:	Counter-clockwise
Weight [g]:	295 $\pm$ 4.0%
Moment of inertia [kgm^2]:	1.43e-02
Center hole [mm]:	$\varnothing$ 10
Max drilling diameter [mm]:	48
Mounting:	link to possible patterns
Limit RPM (0.7 Mach at blade tip)	6000
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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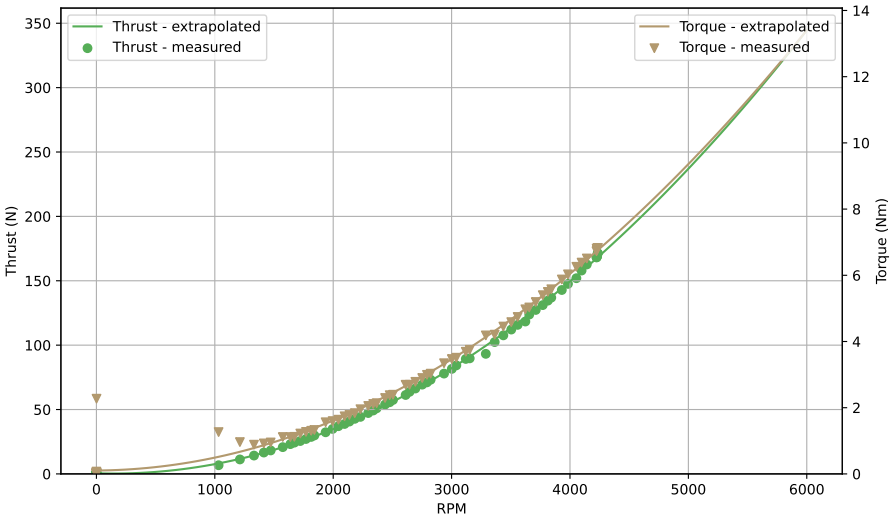
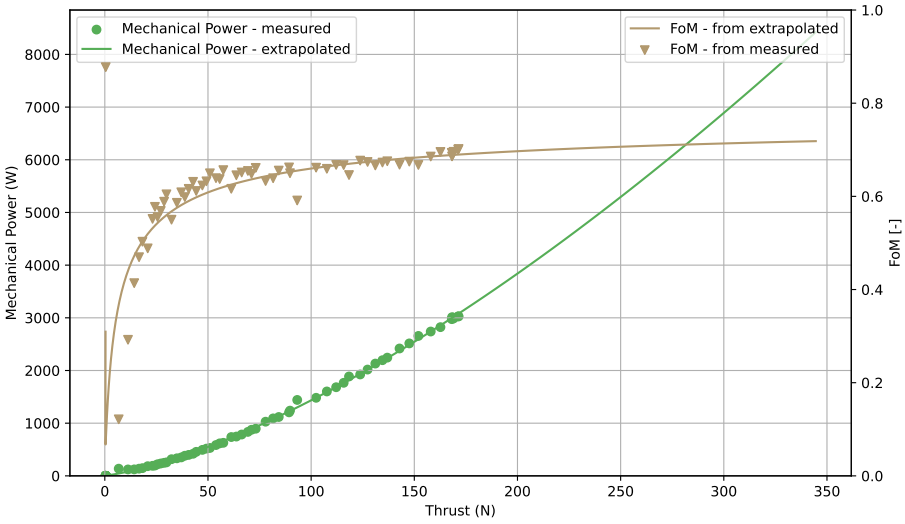
Measured data

Static test result





Thrust (RPM) $= 1.00488e-05 \cdot RPM^2 + -0.00295 \cdot RPM + 0.50478$

Torque (RPM) $= 3.65446e-07 \cdot RPM^2 + 2.40644e-05 \cdot RPM + 0.10252$

Mechanical power (RPM) $= 4.49907e-08 \cdot RPM^3 + -3.68638e-05 \cdot RPM^2 + 0.06257 \cdot RPM + 0.43608$

Formulas used to calculate FOM:

$C_T = \frac{T_0}{\rho A V_T^2}$ $C_P = \frac{P_0}{\rho A V_T^3}$ $FOM = \sqrt{\frac{2}{\pi}} \frac{C_T^{\frac{3}{2}}}{C_P}$

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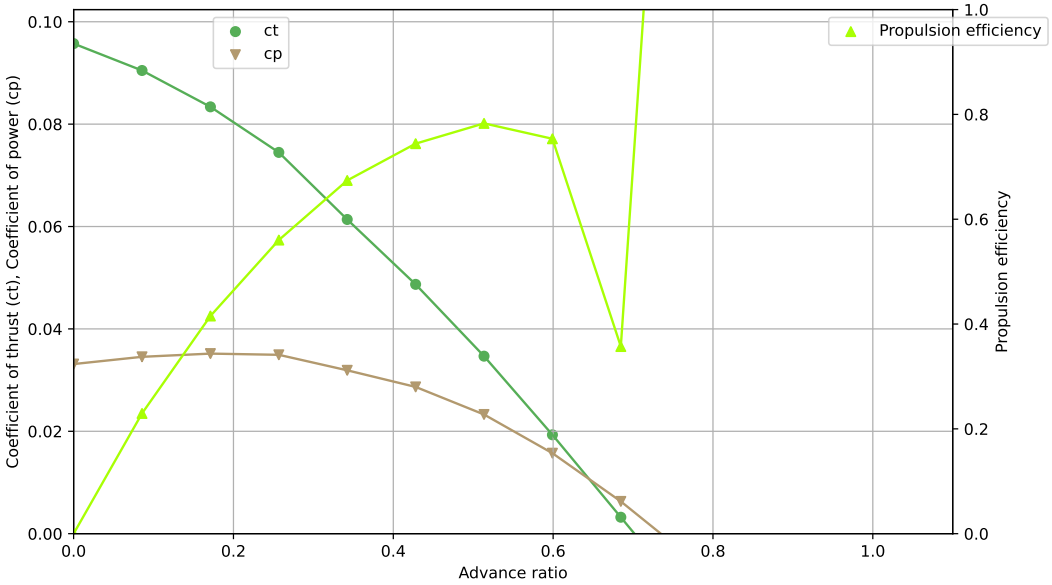
Simulated data

Dynamic simulation result - at rpm-sim



v_inf	Ct	Cp	Propulsion efficiency	Advance ratio
0.0	0.0957	0.0331	0.0	0.0
5.0	0.0905	0.0345	0.2295	0.0856
10.0	0.0834	0.0352	0.4153	0.1712
15.0	0.0745	0.0349	0.5603	0.2568
20.0	0.0614	0.0319	0.674	0.3423
25.0	0.0487	0.0287	0.7442	0.4279
30.0	0.0347	0.0233	0.7829	0.5135
35.0	0.0193	0.0157	0.7535	0.5991
40.0	0.0032	0.0063	0.3571	0.6847
45.0	-0.0129	-0.0045	2.2809	0.7703
50.0	-0.0256	-0.0119	1.8818	0.8559
55.0	-0.0371	-0.0194	1.8436	0.9415

Formulas for forward flight:

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

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