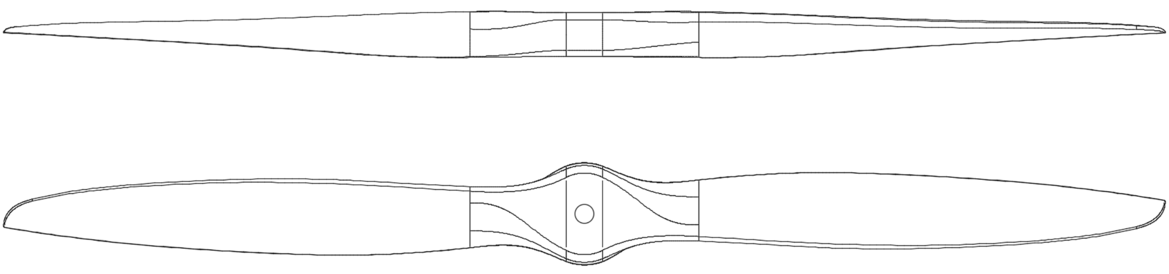
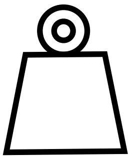
22x12 2B GAS

PN:222120, 222121

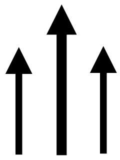
Product sheet

Rev.: 00
2024-04-19

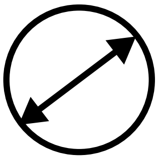




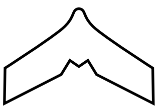
128 g
Mass



19.1 kgf
Max Thrust



22.0″
Diameter



Fixed wing

Engine type:	Gas
Folding/Fixed	Fixed
Rotational direction:	Counter-clockwise and Clockwise available
Weight [g]:	128 ± 10.0%
Moment of inertia [kgm^2]:	3.33e-03
Center hole [mm]:	⌀ 10
Max drilling diameter [mm]:	34
Mounting:	link to possible patterns
Limit RPM (0.7 Mach at blade tip)	8200
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: $I = \frac{1}{12} \cdot mass \cdot diameter^2$

To get more information about manufacturing process or possibility to customize propeller reach out to info@mejzlik.eu

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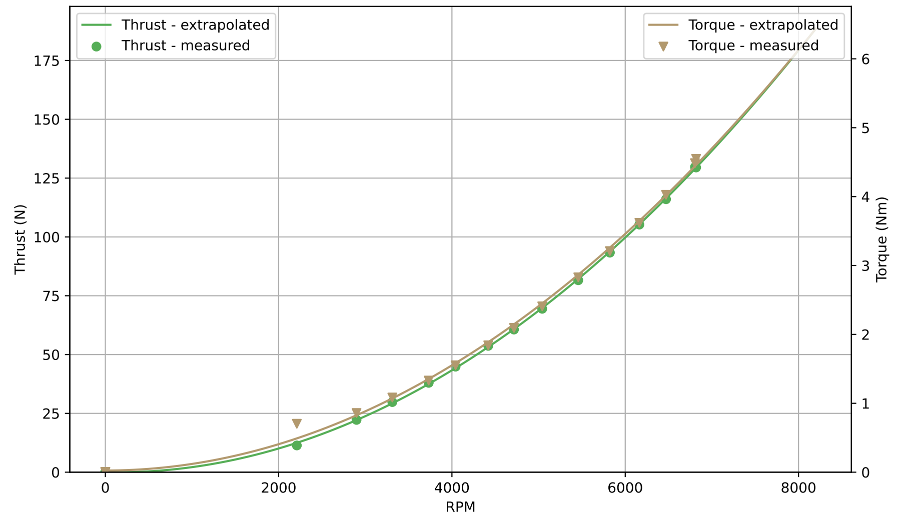
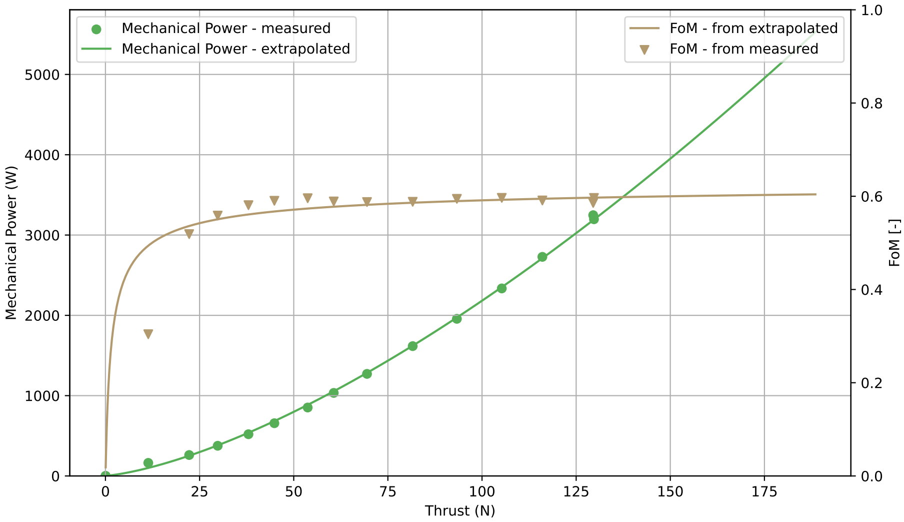
Measured data

Static test result





Thrust (RPM) $= 2.89587e-06 \cdot RPM^2 + -0.000754322 \cdot RPM + -0.00095751$

Torque (RPM) $= 9.53548e-08 \cdot RPM^2 + 3.00811e-07 \cdot RPM + 0.02422$

Mechanical power (RPM) $= 1.34322e-08 \cdot RPM^3 + -3.3805e-05 \cdot RPM^2 + 0.07912 \cdot RPM + 0.03185$

Formulas used to calculate FOM:

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

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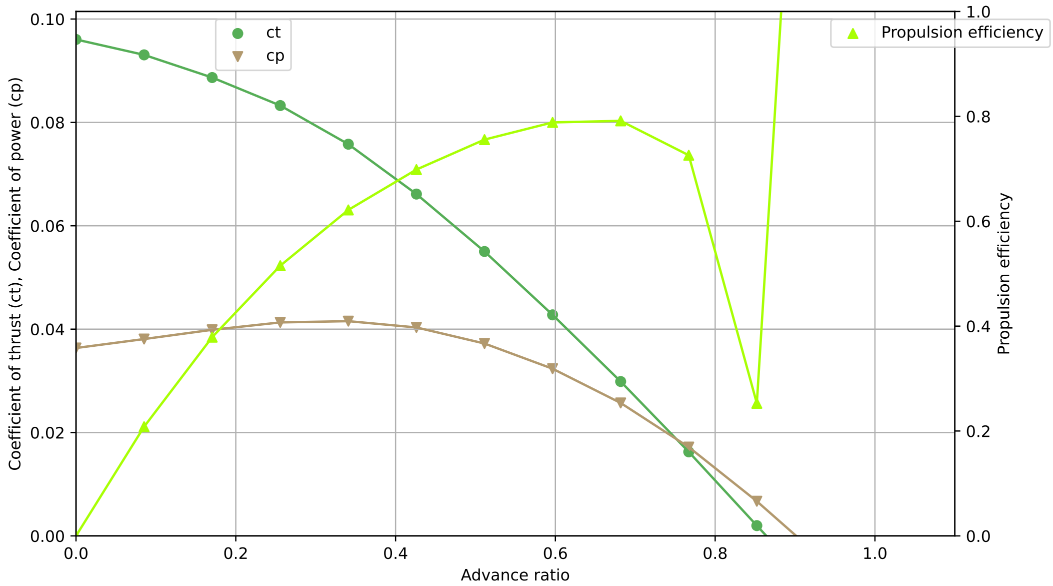
Simulated data

Dynamic simulation result - at rpm-sim



v_inf	Ct	Cp	Propulsion efficiency	Advance ratio
0.0	0.096	0.0364	0.0	0.0
5.0	0.0931	0.0381	0.2082	0.0852
10.0	0.0887	0.0399	0.3789	0.1704
15.0	0.0833	0.0413	0.5152	0.2556
20.0	0.0758	0.0415	0.6216	0.3409
25.0	0.0661	0.0403	0.6985	0.4261
30.0	0.055	0.0372	0.7557	0.5113
35.0	0.0428	0.0323	0.7885	0.5965
40.0	0.0299	0.0257	0.7914	0.6817
45.0	0.0163	0.0172	0.7258	0.7669
50.0	0.002	0.0067	0.2528	0.8522
55.0	-0.0122	-0.0049	2.3427	0.9374

Formulas for forward flight:

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

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