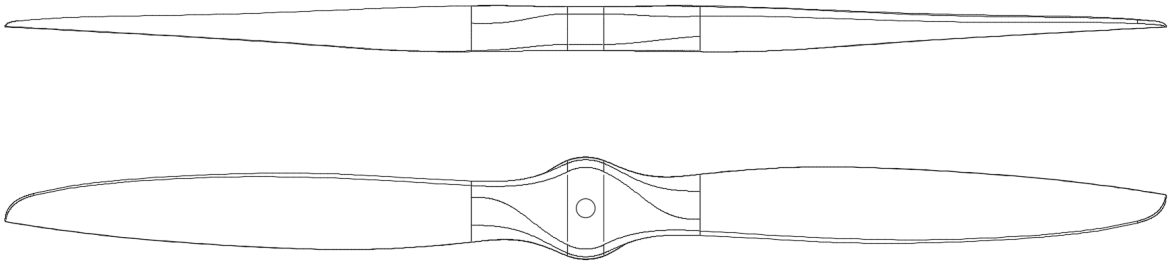
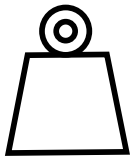
20x12 2B GAS

PN:220120, 2201201

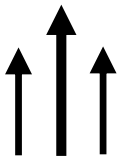
Product sheet

Rev.: 00
2024-04-19

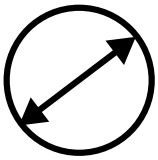




103 g
Mass



17.0 kgf
Max Thrust



20.0”
Diameter

Fixed wing

Engine type:	Gas
Folding/Fixed	Fixed
Rotational direction:	Counter-clockwise and Clockwise available
Weight [g]:	103 $\pm$ 10.0%
Moment of inertia [kgm^2]:	2.22e-03
Center hole [mm]:	$\varnothing$ 10
Max drilling diameter [mm]:	30
Mounting:	link to possible patterns
Limit RPM (0.7 Mach at blade tip)	9000
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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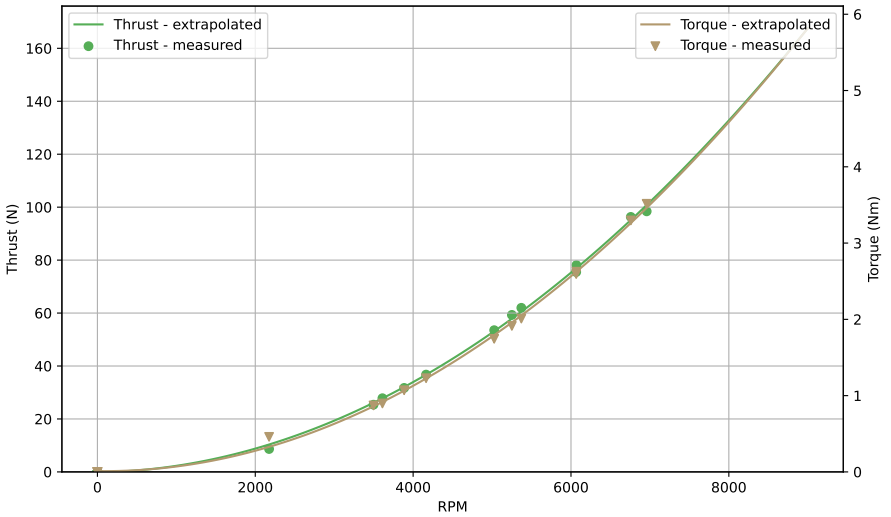
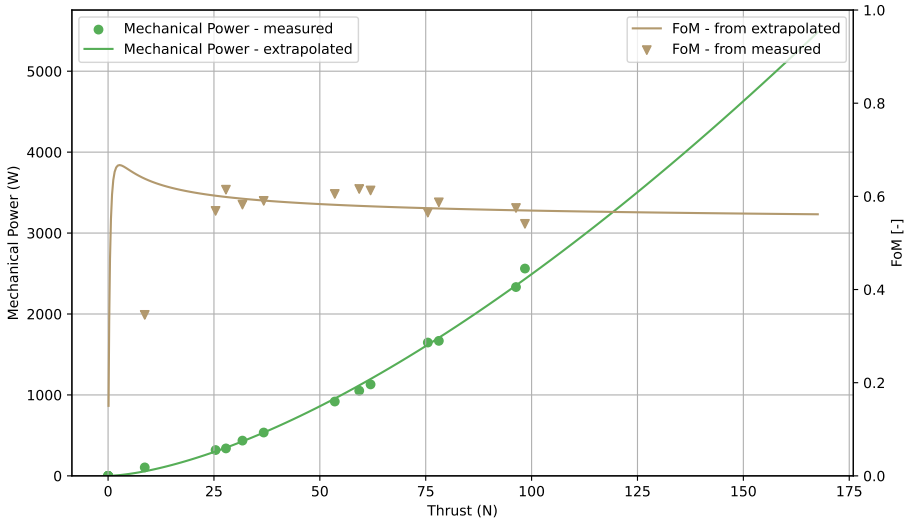
Measured data

Static test result





Thrust (RPM) $= 2.02277e-06 \cdot RPM^2 + 0.000431101 \cdot RPM + -0.15534$

Torque (RPM) $= 7.30927e-08 \cdot RPM^2 + -1.27513e-05 \cdot RPM + 0.01055$

Mechanical power (RPM) $= 1.01305e-08 \cdot RPM^3 + -2.60187e-05 \cdot RPM^2 + 0.05833 \cdot RPM + -0.15046$

Formulas used to calculate FOM:

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

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

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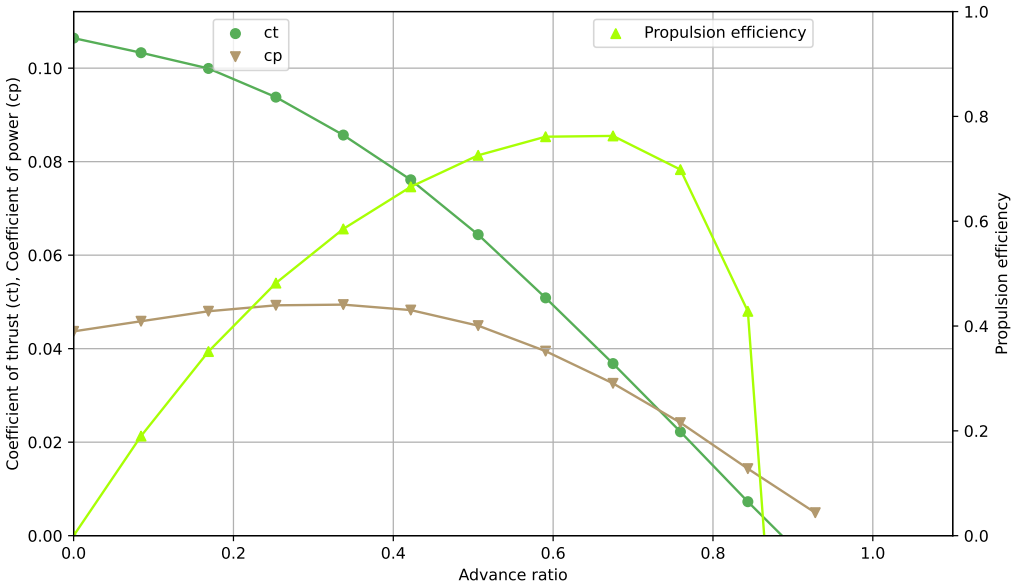
Simulated data

Dynamic simulation result - at rpm-sim



v_inf	Ct	Cp	Propulsion efficiency	Advance ratio
0.0	0.1064	0.0437	0.0	0.0
5.0	0.1033	0.0459	0.1901	0.0844
10.0	0.0999	0.048	0.3514	0.1687
15.0	0.0938	0.0493	0.482	0.2531
20.0	0.0857	0.0494	0.5853	0.3375
25.0	0.0761	0.0483	0.6656	0.4218
30.0	0.0644	0.0449	0.7258	0.5062
35.0	0.0509	0.0395	0.7613	0.5906
40.0	0.0368	0.0326	0.7628	0.6749
45.0	0.0222	0.0242	0.6985	0.7593
50.0	0.0073	0.0143	0.4282	0.8436
55.0	-0.0071	0.0049	-1.3382	0.928

Formulas for forward flight:

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

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