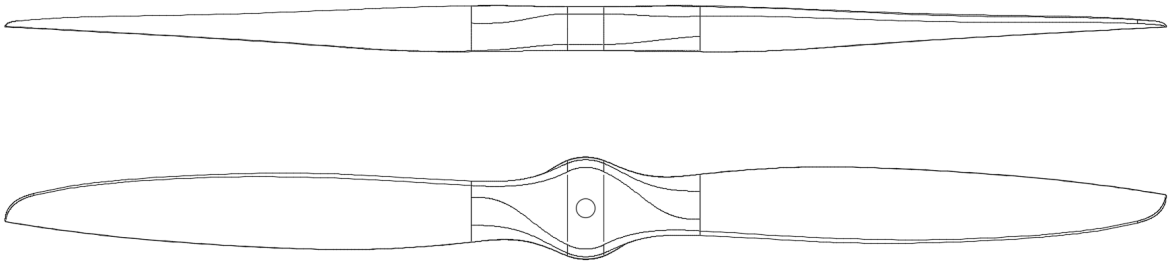
28x12 2B GAS

PN:228120

Product sheet

Rev.: 00
2024-04-19



229 g
Mass

29.3 kgf
Max Thrust

28.0”
Diameter

Fixed wing

Engine type:	Gas
Folding/Fixed	Fixed
Rotational direction:	Counter-clockwise
Weight [g]:	229 ± 8.0%
Moment of inertia [kgm^2]:	9.65e-03
Center hole [mm]:	⌀ 10
Max drilling diameter [mm]:	40
Mounting:	link to possible patterns
Limit RPM (0.7 Mach at blade tip)	6400
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)

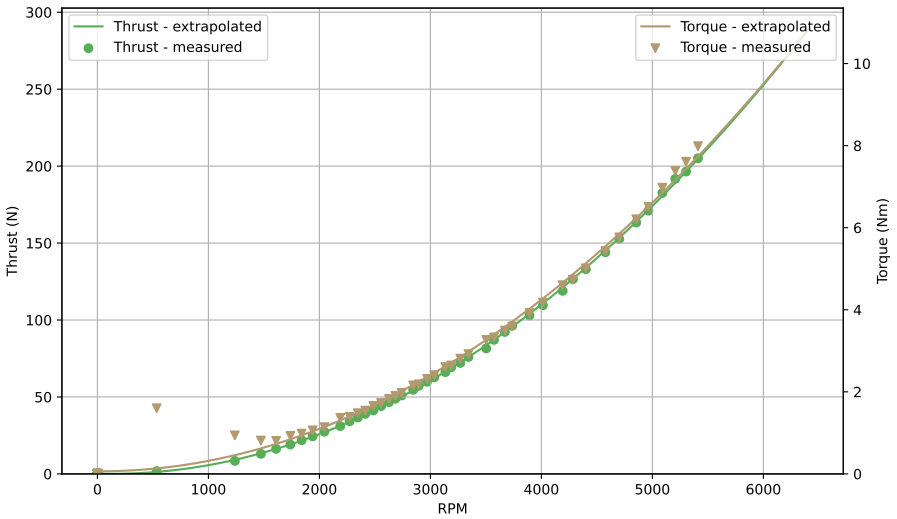
Formula used to calculate moment of inertia: $I = \frac{1}{12} \cdot mass \cdot diameter^2$

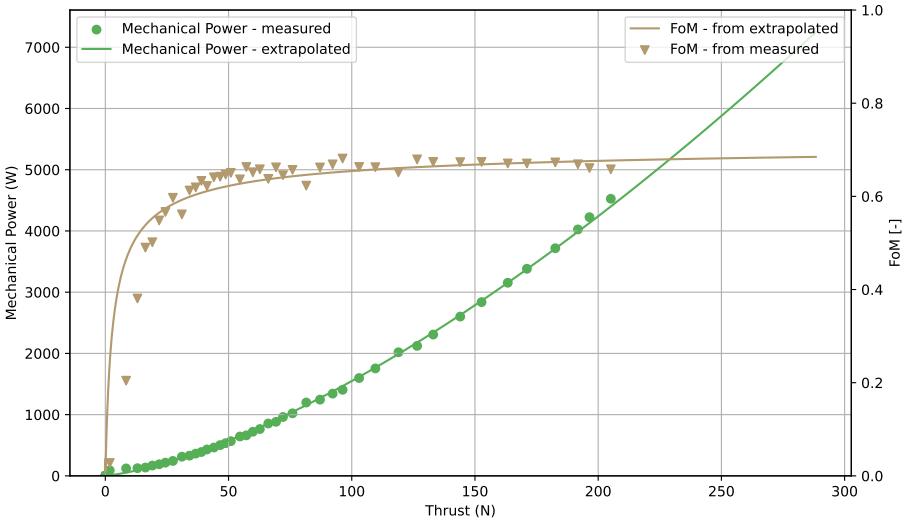
28x12 2B GAS

PN:228120

Measured data

Static test result





Thrust (RPM) $= 7.31087e-06 \cdot RPM^2 + -0.00177 \cdot RPM + 0.14519$

Torque (RPM) $= 2.64013e-07 \cdot RPM^2 + -1.05064e-05 \cdot RPM + 0.06438$

Mechanical power (RPM) $= 3.71222e-08 \cdot RPM^3 + -6.8558e-05 \cdot RPM^2 + 0.11429 \cdot RPM + 0.39019$

Formulas used to calculate FOM:

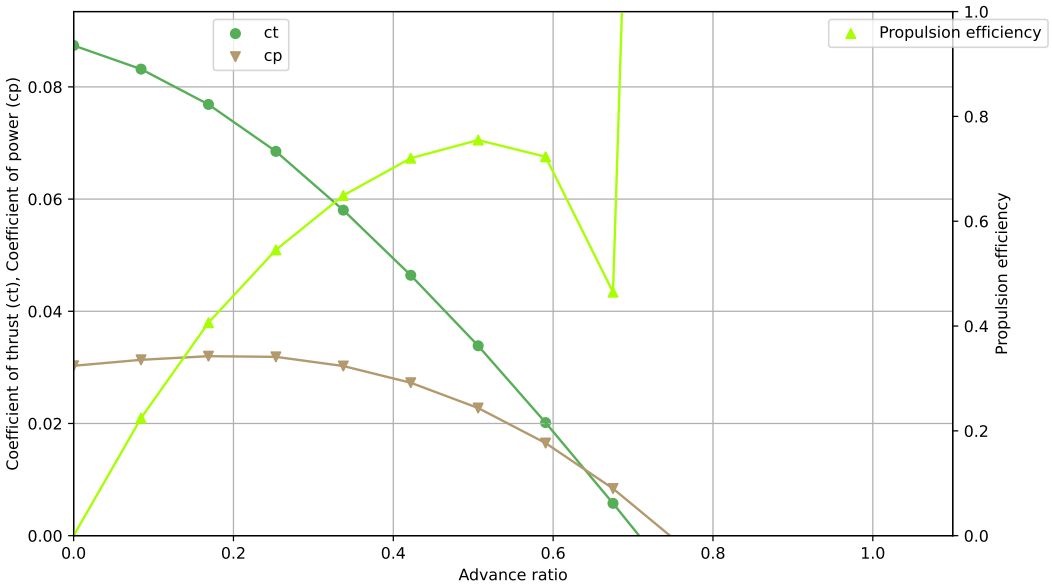
$C_T = \frac{T_0}{\rho A V_T^2}$ $C_P = \frac{P_0}{\rho A V_T^3}$ $FOM = \sqrt{\frac{2}{\pi}} \frac{C_T^{\frac{3}{2}}}{C_P}$

28x12 2B GAS

PN:228120

Simulated data

Dynamic simulation result - at rpm-sim



v_inf	Ct	Cp	Propulsion efficiency	Advance ratio
0.0	0.0874	0.0303	0.0	0.0
5.0	0.0832	0.0313	0.2244	0.0844
10.0	0.0769	0.032	0.4064	0.1687
15.0	0.0685	0.0319	0.5453	0.2531
20.0	0.058	0.0302	0.6492	0.3375
25.0	0.0464	0.0273	0.7202	0.4218
30.0	0.0339	0.0228	0.7549	0.5062
35.0	0.0202	0.0165	0.723	0.5906
40.0	0.0058	0.0084	0.4646	0.6749
45.0	-0.0091	-0.0015	4.5151	0.7593
50.0	-0.0239	-0.0119	1.6903	0.8436
55.0	-0.0334	-0.0155	2.0058	0.928

Formulas for forward flight:

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

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