

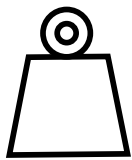
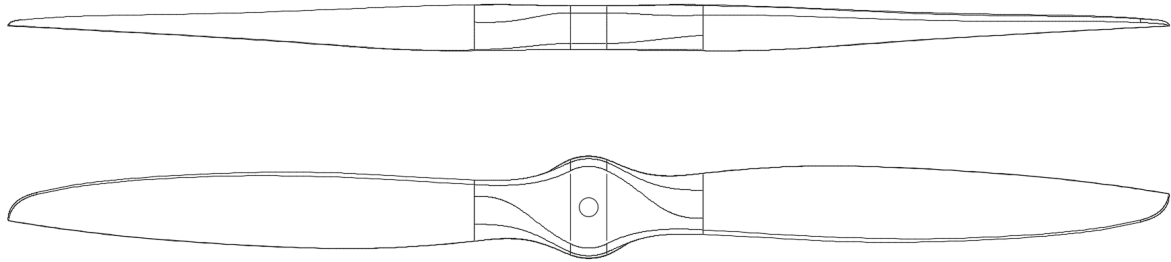


24x12 2B GAS

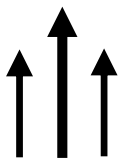
PN:224120, 224121

Product sheet

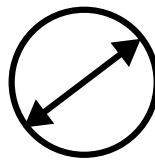
Rev.: 00
2024-04-19



142 g
Mass



21.6 kgf
Max Thrust



24.0"
Diameter



Fixed wing

| | |
|--|--|
| Engine type: | Gas |
| Folding/Fixed | Fixed |
| Rotational direction: | Counter-clockwise and Clockwise available |
| Weight [g]: | 142 ± 6.0% |
| Moment of inertia [kgm ²]: | 4.40e-03 |
| Center hole [mm]: | ∅ 10 |
| Max drilling diameter [mm]: | 34 |
| Mounting: | link to possible patterns |
| Limit RPM (0.7 Mach at blade tip) | 7500 |
| 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: $I = \frac{1}{12} \cdot mass \cdot diameter^2$

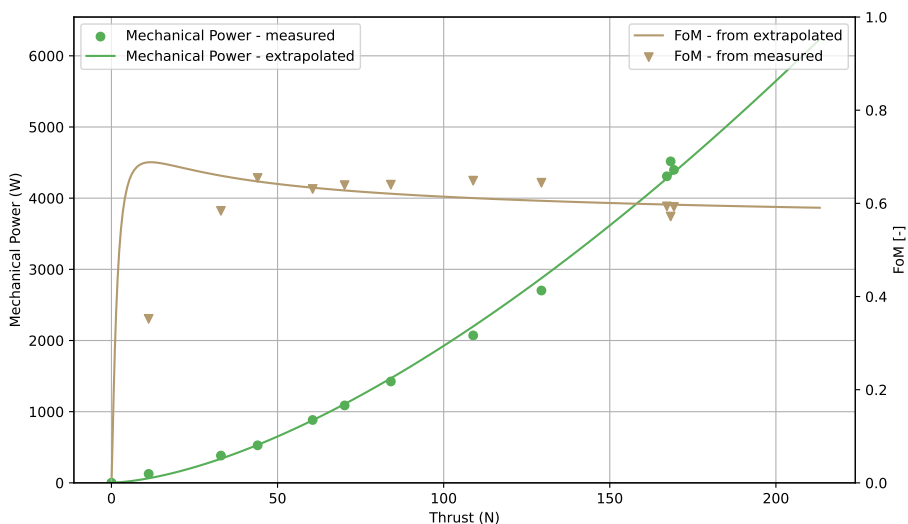
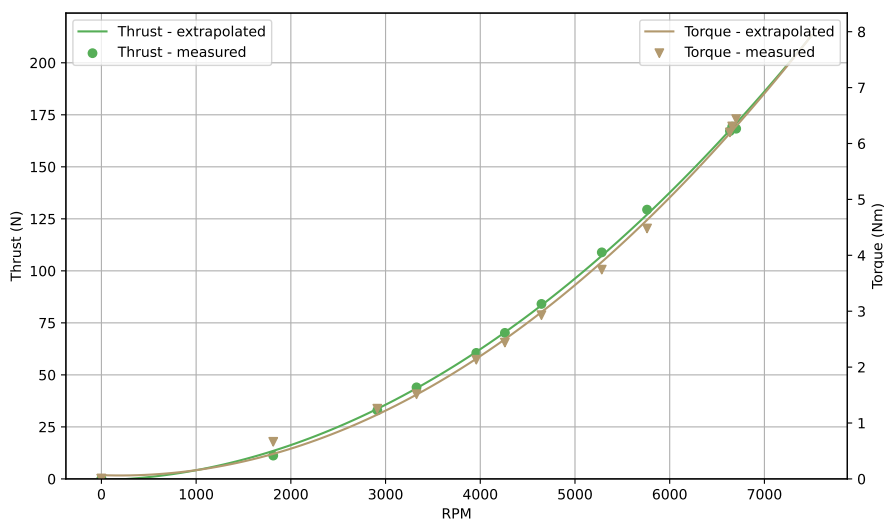


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Measured data

Static test result



$$\text{Thrust (RPM)} = 3.6495e - 06 \cdot \text{RPM}^2 + 0.00114 \cdot \text{RPM} + -0.60501$$

$$\text{Torque (RPM)} = 1.47688e - 07 \cdot \text{RPM}^2 + -5.84315e - 05 \cdot \text{RPM} + 0.06735$$

$$\text{Mechanical power (RPM)} = 2.10048e - 08 \cdot \text{RPM}^3 + -6.00709e - 05 \cdot \text{RPM}^2 + 0.12755 \cdot \text{RPM} + -3.88811$$

Formulas used to calculate FOM:

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

$$C_P = \frac{P_0}{\rho AV_T^3}$$

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

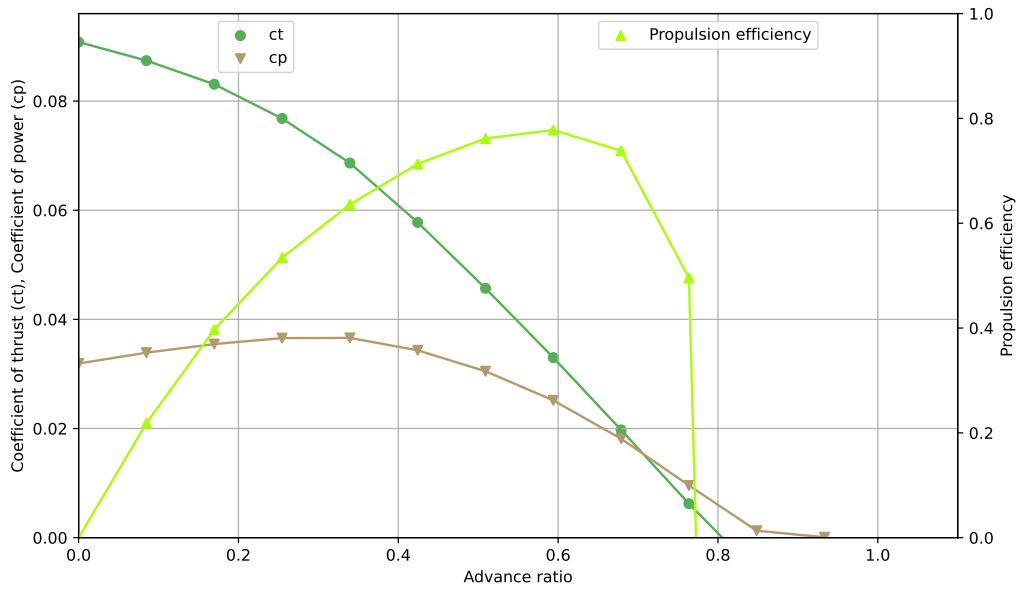


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Simulated data

Dynamic simulation result - at rpm-sim



| v_inf | Ct | Cp | Propulsion efficiency | Advance ratio |
|-------|---------|--------|-----------------------|---------------|
| 0.0 | 0.0908 | 0.0319 | 0.0 | 0.0 |
| 5.0 | 0.0874 | 0.0339 | 0.2185 | 0.0848 |
| 10.0 | 0.0831 | 0.0355 | 0.397 | 0.1697 |
| 15.0 | 0.0768 | 0.0366 | 0.534 | 0.2545 |
| 20.0 | 0.0686 | 0.0366 | 0.6357 | 0.3394 |
| 25.0 | 0.0578 | 0.0343 | 0.7131 | 0.4242 |
| 30.0 | 0.0457 | 0.0305 | 0.7617 | 0.5091 |
| 35.0 | 0.033 | 0.0252 | 0.7778 | 0.5939 |
| 40.0 | 0.0197 | 0.0181 | 0.7383 | 0.6788 |
| 45.0 | 0.0062 | 0.0096 | 0.4955 | 0.7636 |
| 50.0 | -0.0064 | 0.0013 | -4.2534 | 0.8485 |
| 55.0 | -0.0135 | 0.0001 | -154.1087 | 0.9333 |

Formulas for forward flight:

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

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