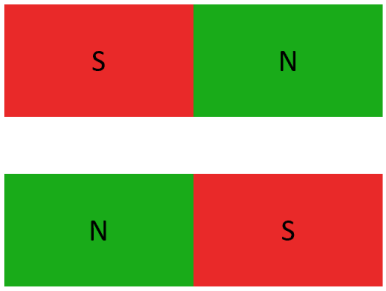
PARANETICS™

ELECTRIC AIRCRAFT, DRONES, TAIL ROTORS, COOLING TOWERS, & SUBMERSIBLES

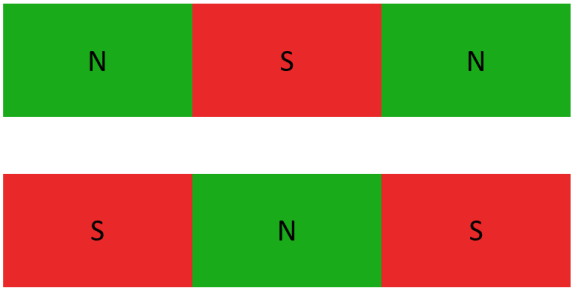
The ParaNetic Magnetic Field

Unlike the poles produced by an ordinary permanent magnet (a single north and south pole), the ParaNetic magnet produces two north poles with a south pole sandwiched in-between (*it can also be configured to produce two south poles with a north pole in between*).

Magnetic Poles of an Ordinary Permanent Magnet

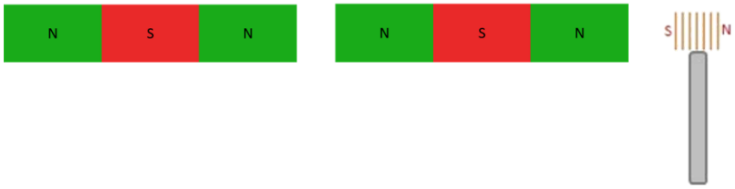


Magnetic Poles of a ParaNetic Permanent Magnet

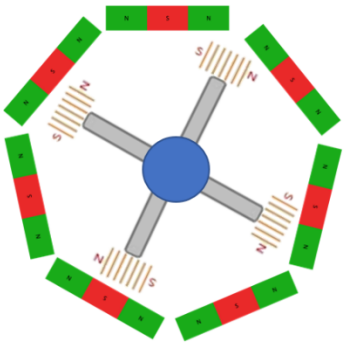


An unlimited number of ParaNetic magnetic fields can be linked together in either a straight line for linear acceleration or in a circle creating the foundation of a ParaNetic motor.

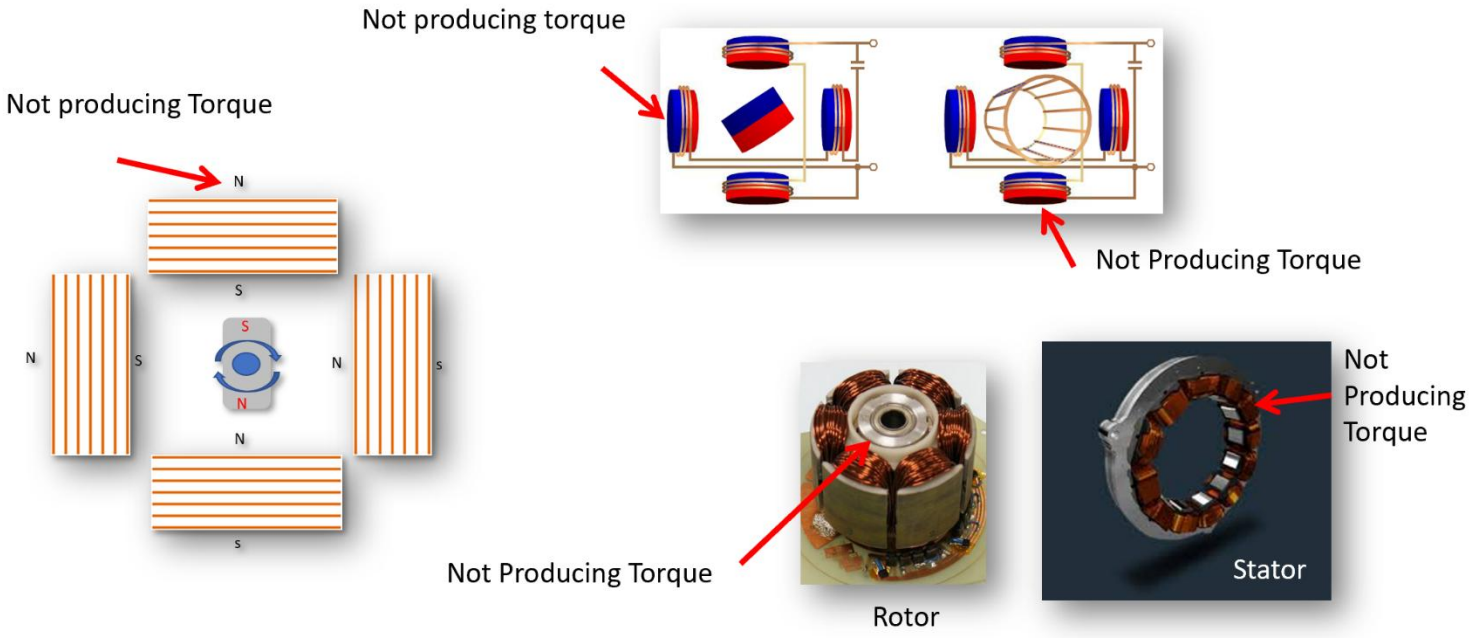
Linear Acceleration

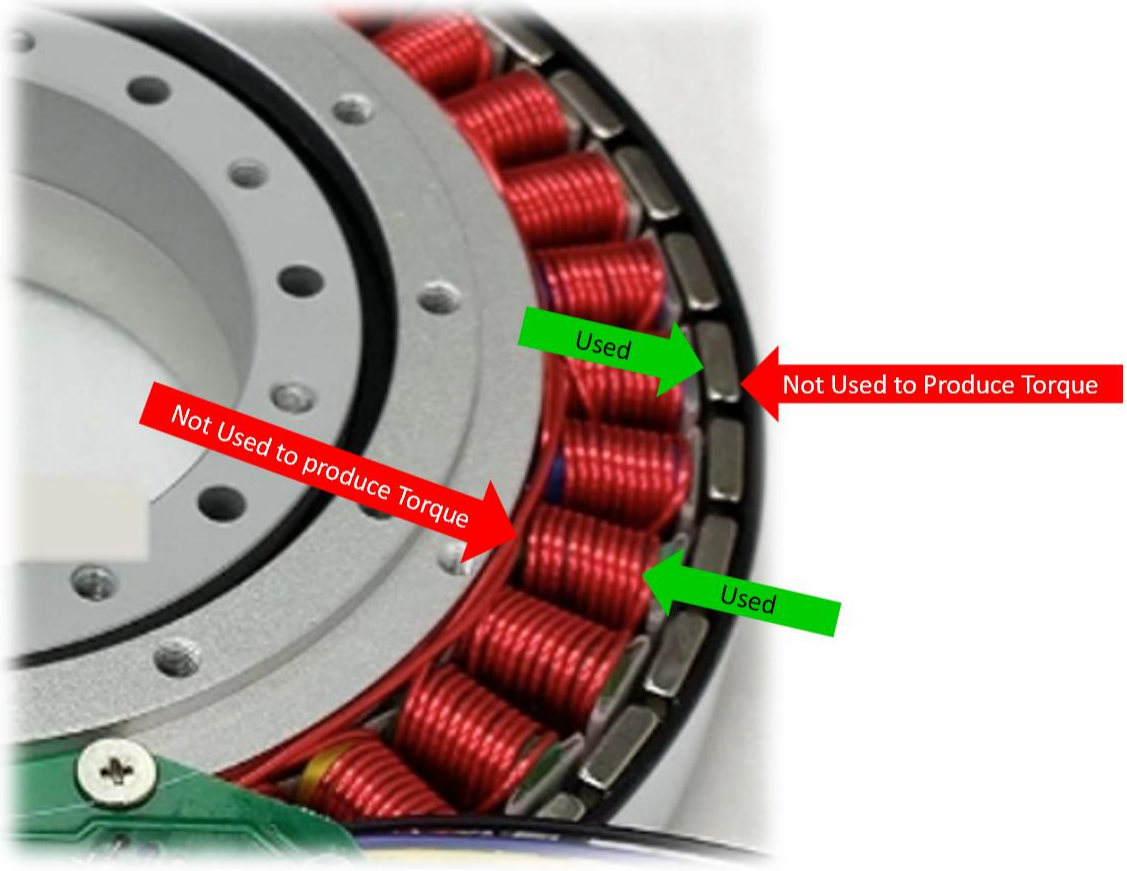


Circular Motor



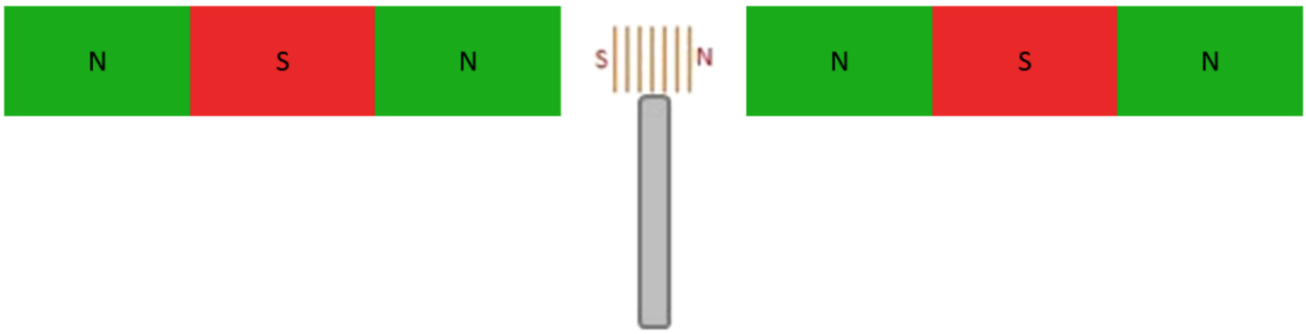
When you look at conventional electric motors being used today, each of them has a similar issue, the face of the winding that does not face the rotor (*air gap*), is not producing torque.





With the invention of a tri-pole magnet, something very special happens when an electromagnet is placed between two of the fields.

Both sides of the electromagnet interact with the tri-pole fields at the same time; one side attracts while the other side repels.



Does this mean the efficiency of the motor is doubled? <u>No — efficiency can never exceed 100%.</u>

What It Does Mean in Plain English

Definitions

- Volts — how hard the electricity is being pushed through a wire.
- Amps — how much electricity is flowing through a wire.
- Watts — the rate at which electricity does work. Watts = Volts × Amps.
- Rotor — the part of the motor that spins.
- Windings — the copper wire coils that wrap around the bobbins and cores.
- ParaNetic Electromagnet — a set of five windings arranged in a Parabolic shape that becomes a magnet when amps flow through it.
- Torque — twisting force. In a ParaNetic motor, torque is how hard the rotor is twisted.
- Heat loss — electricity that turns into heat in the windings instead of into torque. Heat loss is wasted energy.
- Efficiency — the share of the watts going into the motor that comes out as useful work rather than heat loss.

The ParaNetic Advantage

A traditional electric motor uses only one side of each electromagnet: it either pushes or pulls on the rotor's magnets, but not both at once.

The ParaNetic tri-pole field pushes and pulls at the same time. Because of this, the ParaNetic motor can produce the same torque as a traditional motor with roughly half the amps.

Fewer amps means less heat loss in the windings — and the saving is bigger than it sounds.

Cut the amps in half and the windings make only about a quarter of the heat. That is why the ParaNetic motor runs cooler, needs no fan or liquid cooling, and reaches higher efficiency.

ParaNetics

Electric Propulsion System for Aviation, Tail Rotors, Cooling Towers, and Submersibles

1. EXECUTIVE SUMMARY

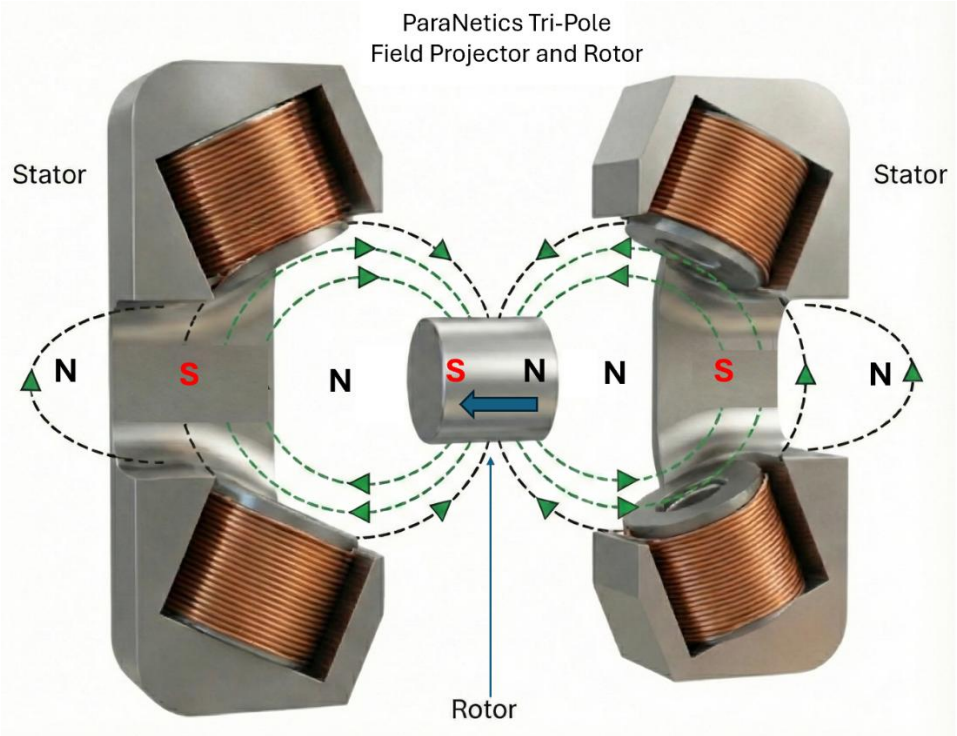
The ParaNetics Propulsion System (PPS):

The ParaNetics Propulsion System (PPS) is the next generation of propulsion for electric aircraft, drone, and submersibles. This propulsion system is built on the patented ParaNetic Magnet and its breakthrough tri-pole magnetic field.

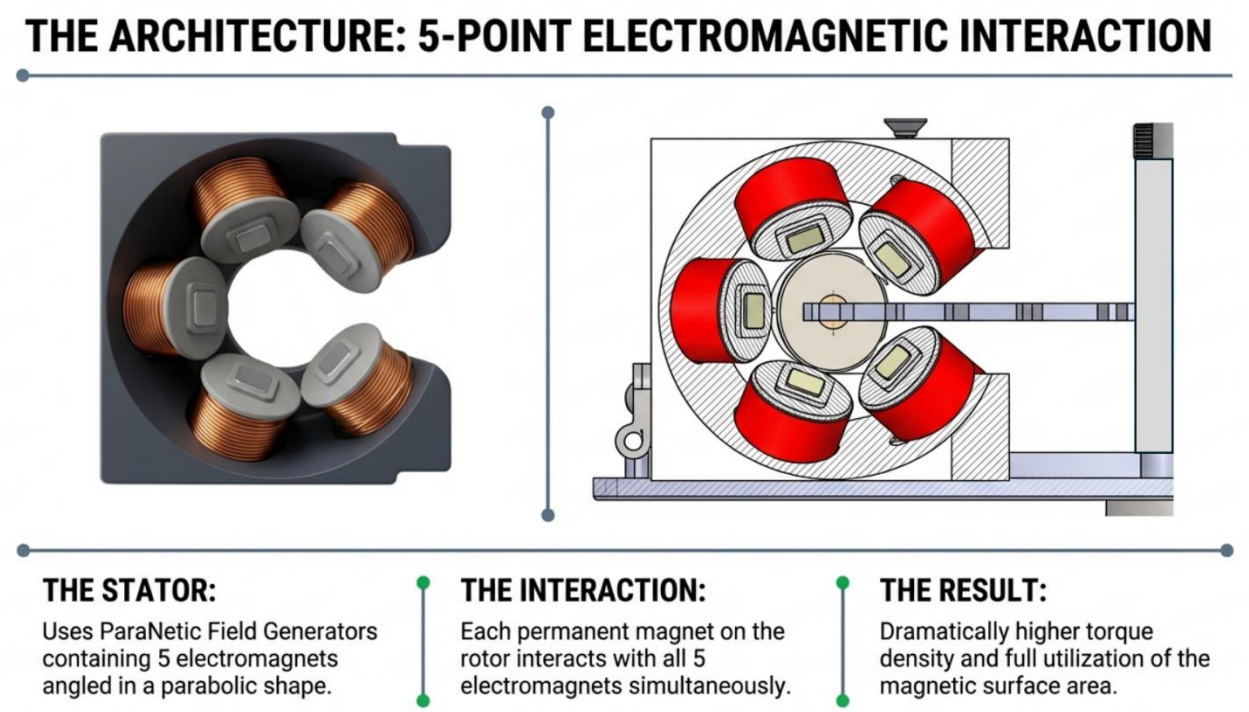
The Game Changing Difference

Traditional electric motors rely on standard dipole magnetic fields, where simple attraction and repulsion between opposite and like poles drive the rotor.

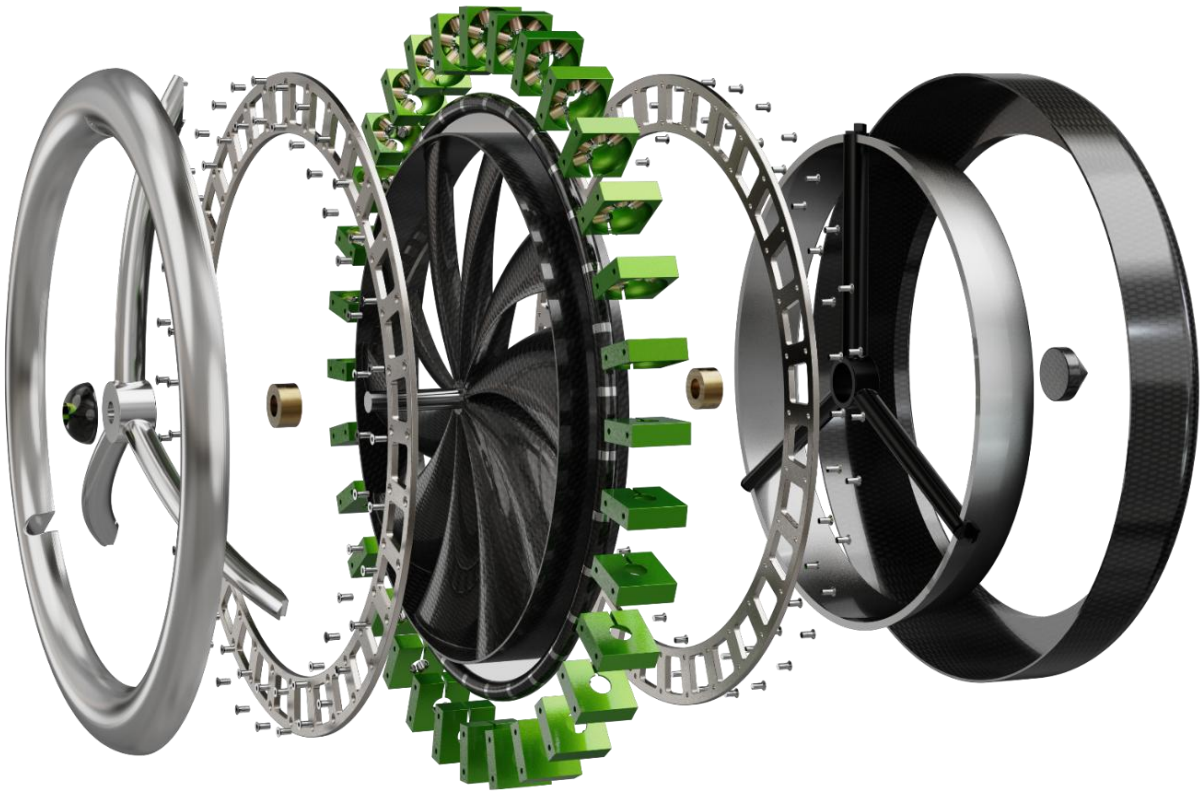
In contrast, the **ParaNetic Propulsion System utilizes a novel "tri-pole" stator design**, sandwiching a single south pole between two north poles. When paired with a standard permanent magnet rotor, this unique configuration enables **simultaneous attraction and repulsion** between the two components.



At the core of the PPS is the ParaNetic Magnet, a proprietary field projector that generates a unique tri-pole magnetic configuration. This design allows each rotor magnet to interact with five stator electromagnets at once, utilizing both the attractive and repulsive sides of the rotor's field. This multi-point interaction significantly outperforms traditional motors in both torque density and efficiency.



Motor Wraps Around the Outside Perimeter



THIS IS NOT A CONVENTIONAL RIM DRIVE MOTOR

Cutaway Views of the ParaNetic Propulsion System

Counter Rotating, Ducted Fan, No Blade Tips, Triple Redundant

Key Features and Advantages

Efficiency: Setting a New Benchmark

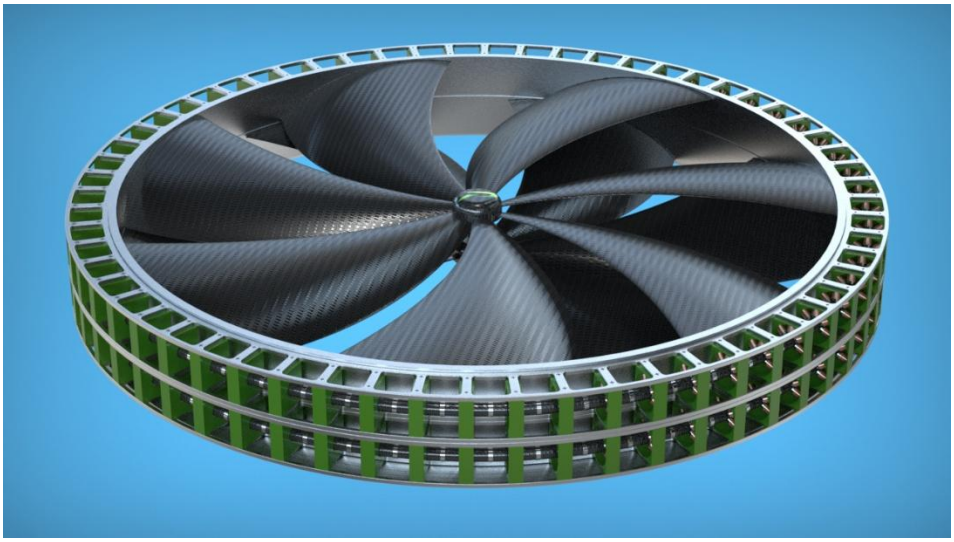
The ParaNetics Propulsion System achieves 96–98% energy efficiency, significantly surpassing industry standards for both brushed (75–80%) and brushless DC motors (85–90%). This unparalleled efficiency is attributed to:

- The patented ParaNetic magnetic field system and optimized magnetic circuits
- Advanced materials and innovative winding techniques
- Reduced energy losses from resistive heating, core inefficiencies, and friction

Stackable Pancake Architecture: Scalable Performance

The propulsion system's flat, modular design enables stacking of multiple units, offering:

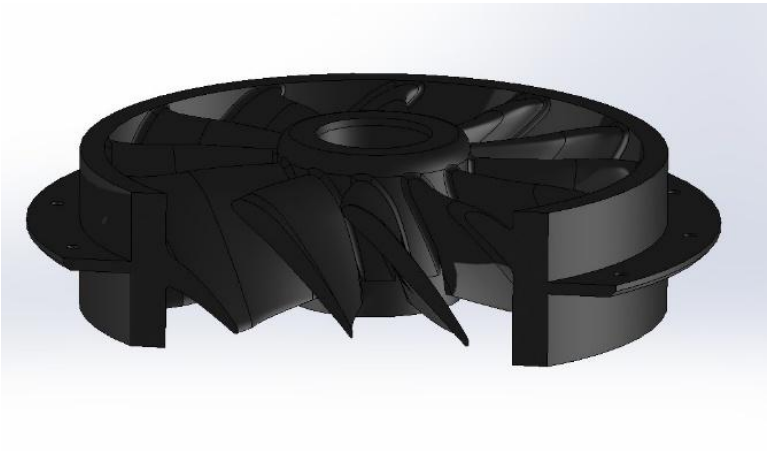
1. **Enhanced Horsepower:** Each stacked unit multiplies power output.
2. **Gyroscopic Force Cancellation:** Counter-rotating blade configurations neutralize torque effects, improving aircraft stability.
3. **Increased Redundancy:** Additional units enhance operational safety and reliability.

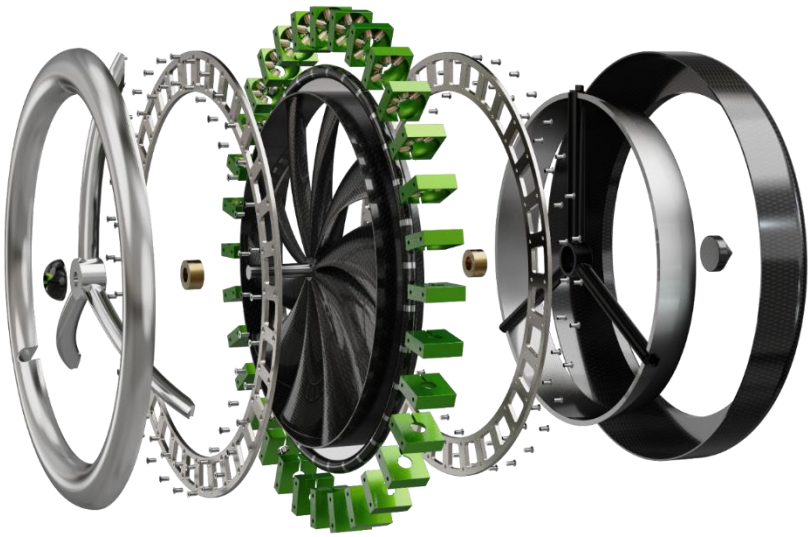


Ducted Fan Blade Design: Enhanced Safety and Performance

The ducted fan blade system sets the ParaNetic Propulsion System apart from open-propeller designs, delivering these core benefits:

1. **Noise Reduction:** The enclosed duct absorbs and disperses sound, resulting in quieter operation — crucial for urban or environmentally sensitive areas.
2. **Safety:** Enclosed blades prevent contact with high-speed components, ideal for populated or confined spaces.
3. **Environmental Resilience:** The protective duct minimizes wear and tear, shielding blades from debris and extending service intervals.
4. **Efficiency:** Blade-tip vortices are eliminated, optimizing thrust and reducing energy losses.
5. **Object Impact Protection:** The duct shields the blades from hazards like small debris or birds during flight.





Triple Redundancy

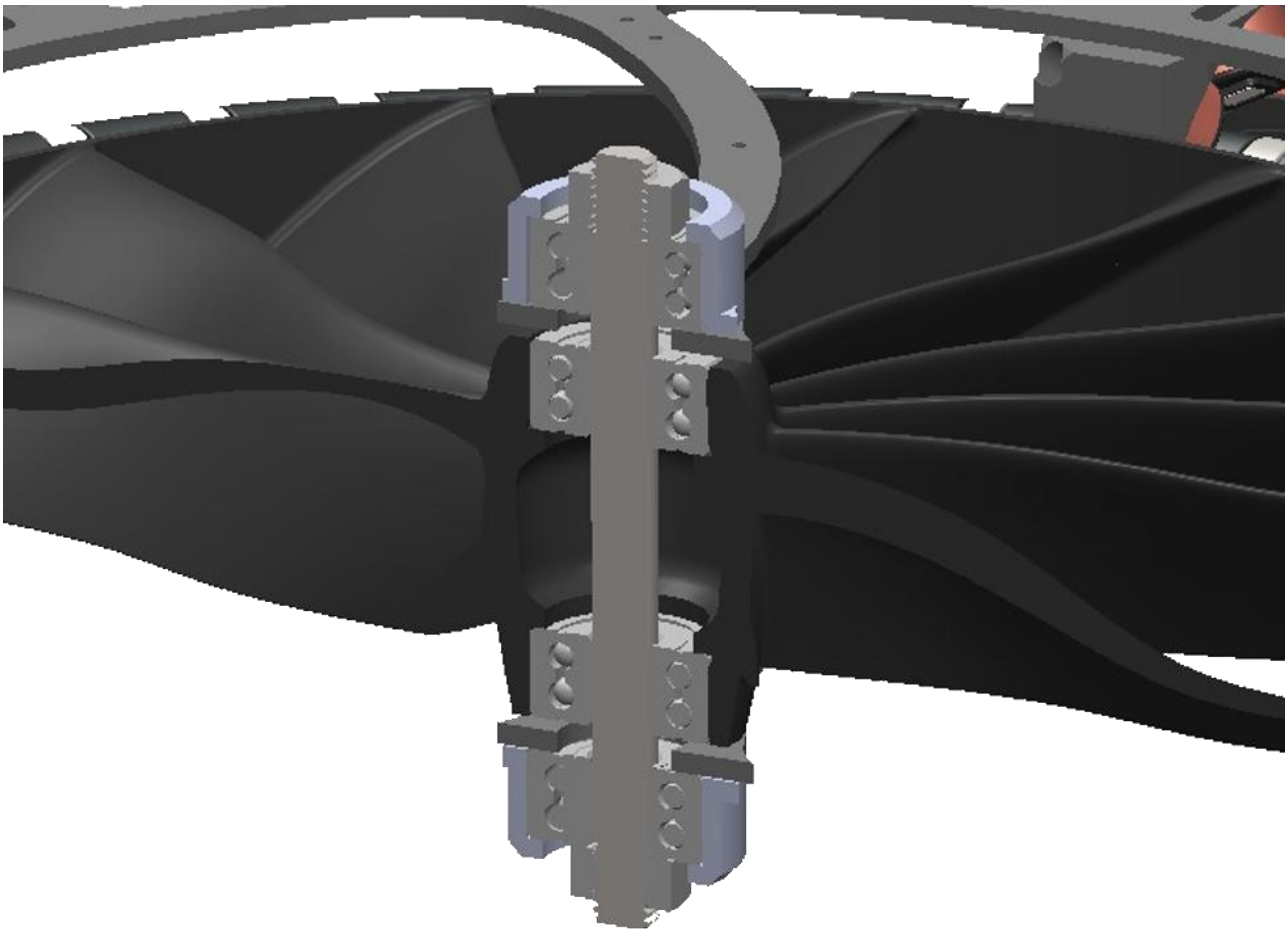
One of the propulsion systems standout features is its integrated triple redundancy, embedding three separate propulsion systems into each propulsion unit as shown by the different colors.

This approach:

- Ensures uninterrupted operation even in the event of component failure
- Optimizes the power-to-weight ratio, critical for flight safety and efficiency
- Reduces the need for separate redundant systems, saving weight and space

Each of the three propulsion units drives a set of blades. Each of the propulsion units is controlled by their own independent computer controller.

Redundant "Quad Bearing" Design: Allows for complete failure of two bearing sets, with no impact on the propulsion system's performance.



Designed to Work with a Variety of Aircraft Designs

In Wing

Pylon

CONCLUSION

The PPS employs a circumferential propulsion system, integrating the rotating magnetic assembly directly into the rim of the ducted fan blades. This architecture effectively eliminates traditional blade tips, which significantly reduces aerodynamic noise and increases thrust. This compact design also enables entirely new geometries for aircraft and submersibles.

Multiple propulsion systems can be stacked to create counter-rotating thrust, cancel gyroscopic torque, and multiply power output without gearboxes or mechanical complexity.

Prototype testing demonstrates 96–98% efficiency, 15–20% torque gains, passive cooling, and significant noise reduction. Every PPS includes three independent propulsion systems, within the unit, each with its own controller and power input—delivering aerospace-grade triple redundancy and fault tolerance.

This mission-first architecture aligns naturally with aerospace certification pathways and enables new vehicle designs impossible with legacy motors.

With seven working prototypes, validated tri-pole field physics, and strong IP protection, the ParaNetics Propulsion System is positioned to redefine electric propulsion across a wide range of electric aircraft and submersible platforms.

The ParaNetics Propulsion System is an innovative breakthrough in electric propulsion technology, blending cutting-edge specifications with versatile design features. It stands out as the leader in high-efficiency, high-performance propulsion systems for electric aircraft and subsurface propulsion.

Visit: **ParaNetics.com**

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