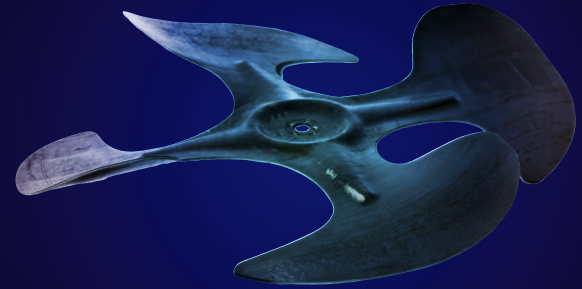


Through a unique approach to design, Oribi Composites is effectively leveraging the use of advanced composites (CFR-TP's) which is proving to have a significantly positive impact on air volume and power consumption for axial fans.



SUMMARY

Oribi set out to increase air flow, reduce EC motor stop/start stress, reduce energy consumption, and reduce overall dB output for axial fans.

ADVANCED COMPOSITES ADVANTAGE

Unidirectional, continuous fiber-reinforced thermoplastic (CFR-TP) materials consist of a polymer matrix reinforced with high-strength continuous fibers. The fibers are custom orientated to purposely engineer strength and stiffness while dramatically minimizing weight and unwanted flex at varying fan speeds.

- CFR-TP fans are up to 10x stronger than other materials and will never lose its shape when stacked or handled roughly during installation
- CFR-TP fans will never go out of balance, never rust, nor bond to motor shaft
- CFR-TP fans have virtually indeterminable life span and far outlive aluminum blades
- CFR-TP's are highly corrosion-resistant and ideal for abrasive and flammable environments
- CFR-TP's are anti-static, non-sparking and thermally stable from -50°F to 400°F

TEST CONDITIONS

CFR-TP DESIGN	ORIBI 4-BLADE AXIAL FAN
Material	Carbon Fiber/PET CFR-TP
Size	12" Diameter

COMPETITION	MARKET LEADING 5-BLADE AXIAL FAN
Material	Aluminum
Size	12" Diameter

Basis of Comparison:

- Cubic Feet per Minute (CFM) through straight 12 ft. length of 14in. diameter ductwork
- Power consumption during start / stop phase, as well as continuous usage
- dB output at 3600 RPM

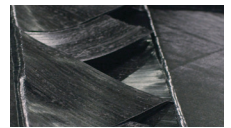
RESULTS

Improved CFM and efficiency resulted in over \$100 annual electricity savings for each installed CFR-TP axial fan along with project NRE payback in less than four months. In addition, dB testing resulted in 1.6x lower perceived volume level.

AXIAL FAN	AVERAGE CFM	AVERAGE CFM/WATT	AVG. START-UP CURRENT (A)	AVG. POWER USAGE (W)	dB LEVEL
CFR-TP	794.41	6.76	2.01	128.75	73
Aluminum	772.43	6.59	2.11	137.38	80.2

UNIDIRECTIONAL COMPOSITE

The advantage of unidirectional fiber is it allows for customized fiber direction minimizing waste material, costs, and weight. On a pure performance basis, there is nothing stronger than a unidirectional fiber layup.



ABOUT ORIBI

At Oribi, we are driven by the belief that advanced materials should be affordable and accessible to all markets.

Founded in 2008, Oribi was born out of a deep knowledge base rooted in engineering and manufacturing ingenuity and a passion for automation and innovation. Our goal was to solve the biggest question in the composite materials industry: How to make advanced composite parts affordable and accessible to all markets.

Fast forward to today, and we are leading the industry in enabling widespread adoption of advanced, lightweight materials for markets where historically it was cost prohibitive. We combine advanced material science with proprietary automated manufacturing processes and engineering design expertise to deliver customized composite solutions that set the standard for quality & performance.

