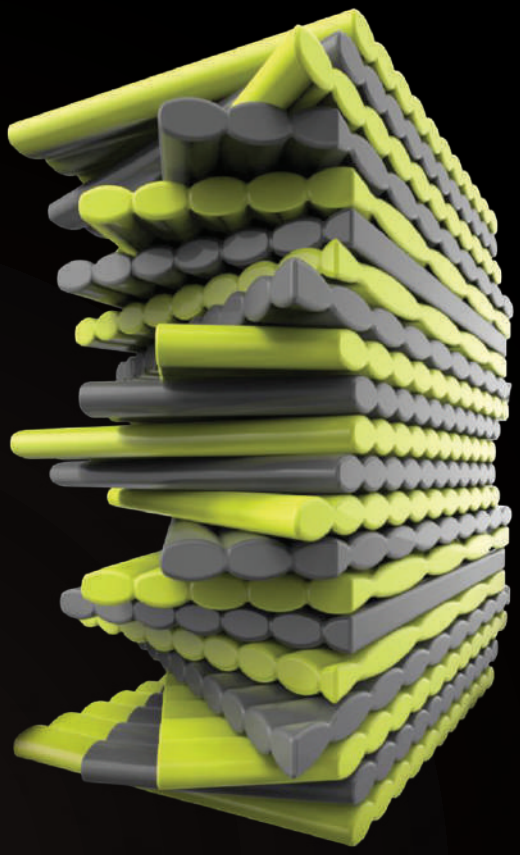
OVERVIEW

HELICOID INDUSTRIES INC.®

Helicoid Industries has patented technology for the helicoid architecture which enables composite material and products to become lighter, stronger and more impact resistant while enabling a lower overall manufactured cost. The architecture controls crack propagation, minimizes critical failure, and ultimately dissipates significant amounts of energy away from the point of impact to avoid catastrophic failure.



The structure is organized in layers of parallel fibers that are stacked upon each other with each layer rotated by an angle from the layer below it.

Conventional composites have small surface area for energy to be transferred to adjacent fibers

The Helicoid™ increases surface area which disperses energy guiding energy away from the point of impact

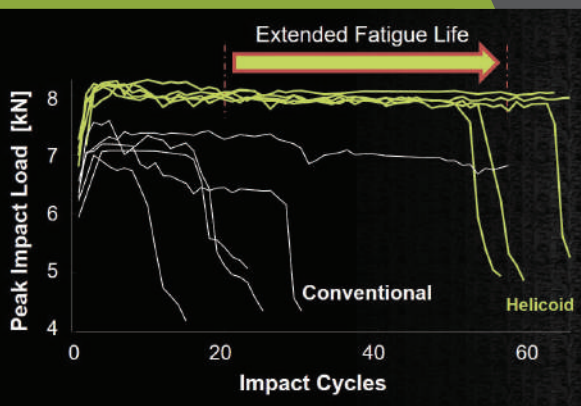
Within the helicoid architecture, cracks are forced to twist as they grow. Crack twisting in a helicoidal structure can provide:

- Multiple microcracks that grow at different origination sites, but never join or combine given the nature of the helicoidal architecture, and
- More crack surface per unit volume, and therefore maximizing energy dissipation. The development and propagation of these microcracks are a source of energy dissipation and stress relaxation that ultimately contributes to the remarkable damage tolerance properties of the helicoid.

Applying the Helicoid to Composites

The natural bio-inspired helicoid structure can be achieved and manufactured using fiber-reinforced composites to create ultra-strong composite materials. The helicoid benefits can be achieved with any composite fibers, resins, or manufacturing equipment, and can easily be applied to numerous industries that are constantly searching for lighter and stronger components. The helicoid architecture is a platform technology which offers the most significant improvements of any current options available today.

Helicoid - High Durability



42%
Higher Stiffnes Retention

15%
Higher Load Retantion

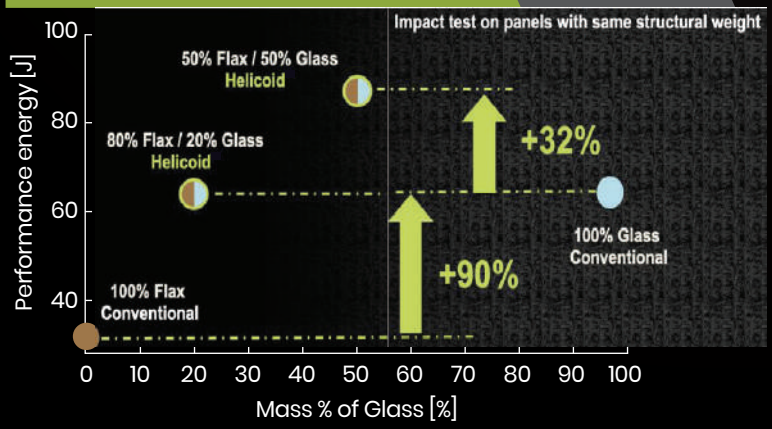
>90%
Durability Improvement

Manufacturing any composite product and by simply utilizing the helicoid architecture provides one of two benefits (or a combination of both);

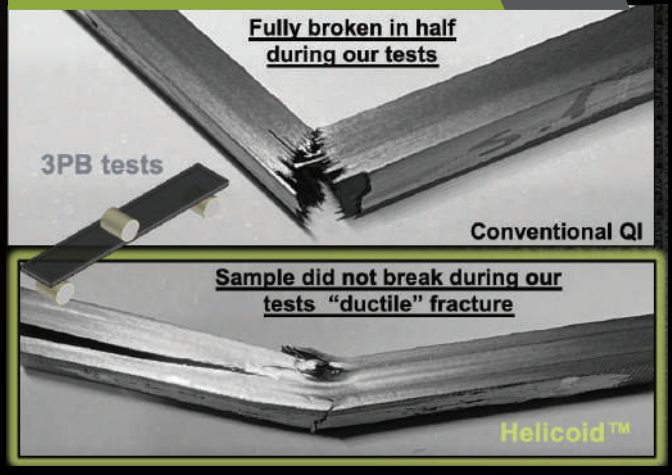
1. Composite parts would provide similar strength and toughness, but would require significantly less material to achieve these properties, thus resulting in reduced raw material costs, reduced weight, and provide better energy efficiency for products such as vehicles or aerospace applications, or

2. Using the same amount of material would result in significantly improved strength, toughness, and damage resistance which would be preferred in applications where weight reduction is not a driving factor such as ballistic protection.

Helicoid Enables More Sustainable Materials

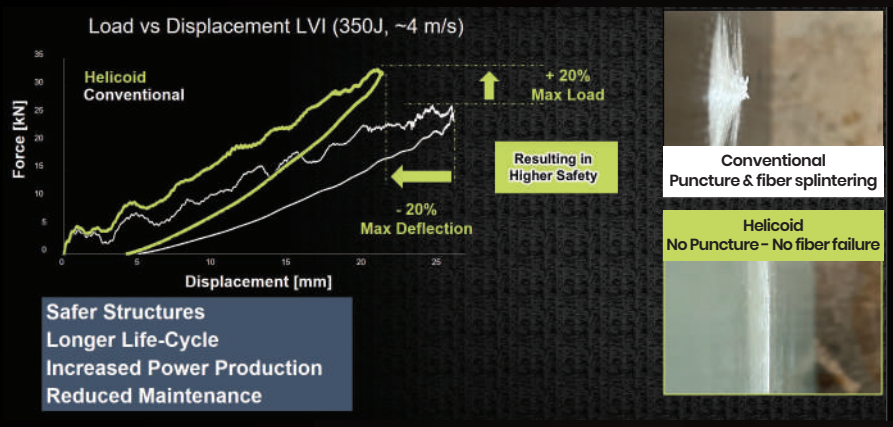


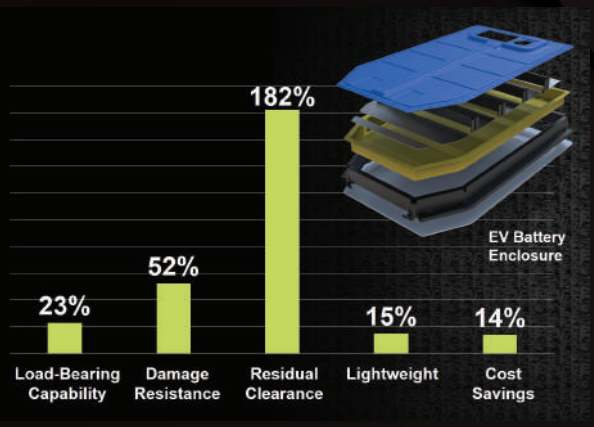
Higher Structural Integrity



EV Battery Enclosure & Skid Plate

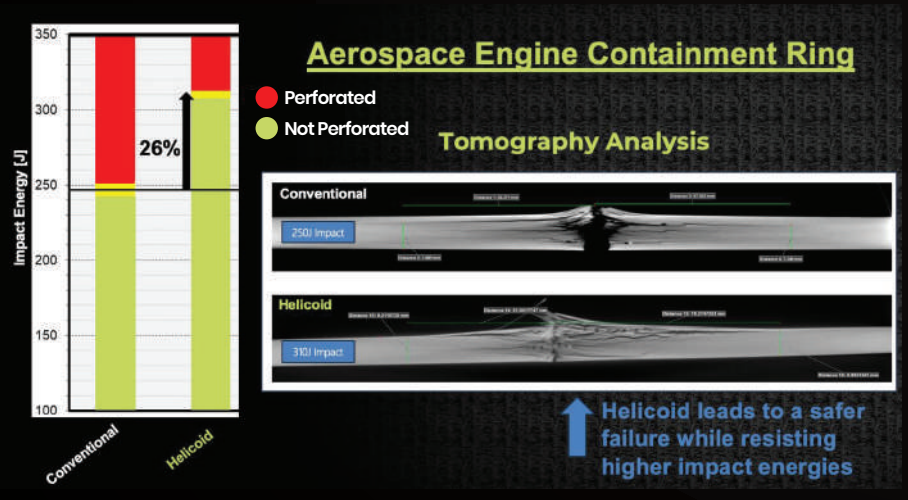
Case Study

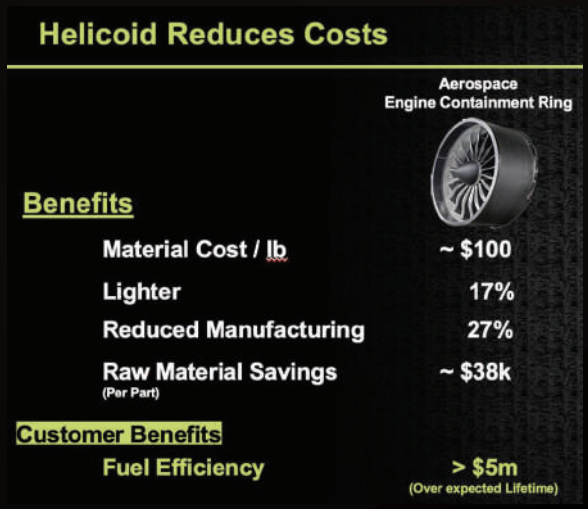




Aerospace Engine Containment Ring

Case Study





Wind Turbine Blade

Case Study