Image: NASA's Mars drone, Ingenuity

TeXtreme®

Spread Tow Thin-Ply Fabrics for Ultra-Light Space Applications

Advanced composite reinforcements for satellites, high-altitude platforms, UAVs, eVTOLs and next-generation aerospace structures.

Email: contact@textreme.com
Web: www.textreme.com

Other fabrics, weights and widths available upon request.*

Image: ICEYE SAR Satellite

Space-Driven Aerospace

Lightweight, high-performance composite materials from TeXtreme® support the next generation of space and high-up aerospace structures by reducing weight, improving stiffness and enabling more efficient laminate design.

From orbiting satellites to high-altitude platforms, UAVs, drones and eVTOL systems, aerospace structures are being designed higher, lighter and more efficiently than ever before. In these applications, structural performance is not only measured by strength, but by how intelligently every gram of material is used.

Space and high-up aerospace structures must combine low weight with stiffness, dimensional stability and long-term reliability. Satellite panels, deployable solar arrays, HAPS wings, UAV structures and eVTOL components all depend on materials that can carry load efficiently without adding unnecessary mass. A lighter structure can support improved payload potential, longer flight time, increased endurance or more efficient mission design.

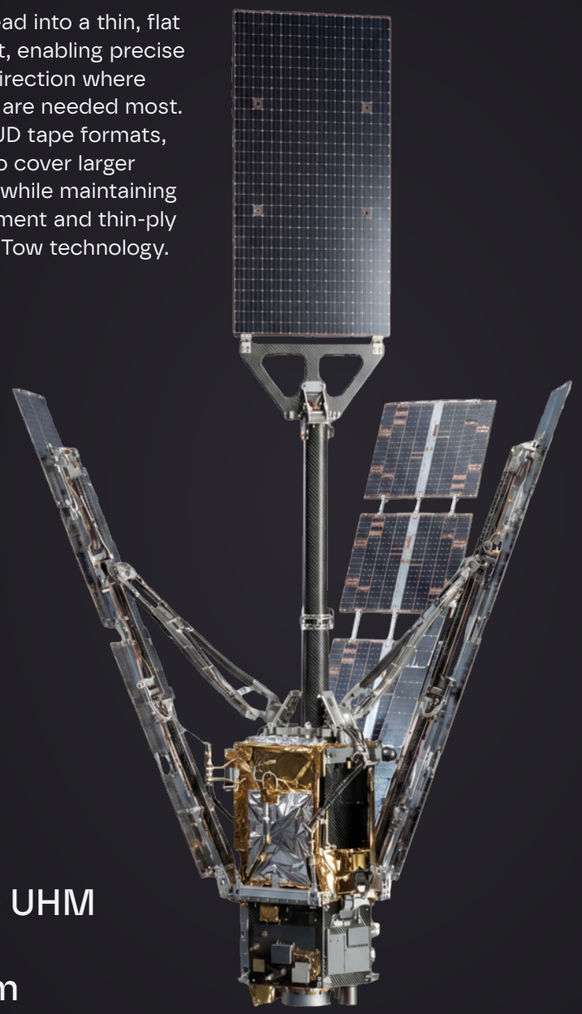
TeXtreme® Spread Tow Thin-Ply Technology supports this by enabling ultra-thin composite laminates with efficient fiber alignment and reduced fiber waviness. The result is a reinforcement platform that helps engineers design lighter, thinner and more mechanically efficient composite structures while maintaining the strength and stiffness required in demanding aerospace environments.

For space applications, this means materials that can support lightweight panels, sandwich skins, deployable structures and precision components where dimensional stability and weight efficiency are critical. For HAPS, UAVs and drones, it means airframes and wings that can remain light, stiff and durable over long operating cycles. For eVTOL and air mobility structures, it means reinforcement solutions that support stiffness-to-weight performance, fatigue resistance and repeatable laminate quality.

TeXtreme® Wide Spread Tow UD Tape

Ultra-thin unidirectional reinforcement in a wider format, developed for lightweight aerospace structures where efficient load-path performance and scalable production are essential.

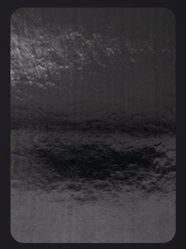
Carbon fibers are spread into a thin, flat and uniform UD format, enabling precise reinforcement in the direction where stiffness and strength are needed most. Compared to narrow UD tape formats, Wide UD is designed to cover larger areas more efficiently while maintaining the straight fiber alignment and thin-ply advantages of Spread Tow technology.



Weights from
25 gsm

Carbon Fiber Type
HS, IM, HM & UHM

Tape Width
300 & 500 mm



TeXtreme® Wide Spread Tow UD Tape

In space and high-up aerospace structures, this is especially valuable where the laminate must carry load efficiently without unnecessary thickness or material build-up. The wider format supports thin, stable and structurally efficient composite designs across components where low weight, stiffness and dimensional stability are critical.

Benefits

Wide UD helps engineers place reinforcement exactly where it contributes most to performance. This supports lightweight structures with improved stiffness-to-weight efficiency, making it highly relevant for satellite structures, deployable systems and high-altitude aerospace platforms where every gram matters. This supports more efficient structural designs with less unnecessary laminate build-up, while maintaining the mechanical performance required in demanding aerospace applications.

Wide UD also supports a more cost-effective route to high-quality UD prepreg production. Dry Wide UD can be processed through existing fabric impregnation lines, reducing the need for complex UD creel setups and avoiding the challenge of creeling hundreds of bobbins. This makes the material especially relevant when aerospace-grade performance must be combined with practical, scalable manufacturing.

TeXtreme® +/-45 Woven Spread Tow Carbon Fabrics

Precision fiber alignment for lightweight composite structures that need torsional stability, shear performance and reliable behavior under complex loading.

The material is produced as continuous-length Spread Tow fabric with fibers oriented at a precise +/-45 degrees. This architecture is designed for structures where off-axis loads and twisting forces must be controlled without adding unnecessary laminate thickness.

In space and high-up aerospace applications, +/-45 fabrics are often used as a complement to unidirectional reinforcement. While UD materials carry load efficiently in defined directions, +/-45 fabrics help create balance and stability in the laminate, supporting structures that must remain light, stiff and predictable under demanding conditions.

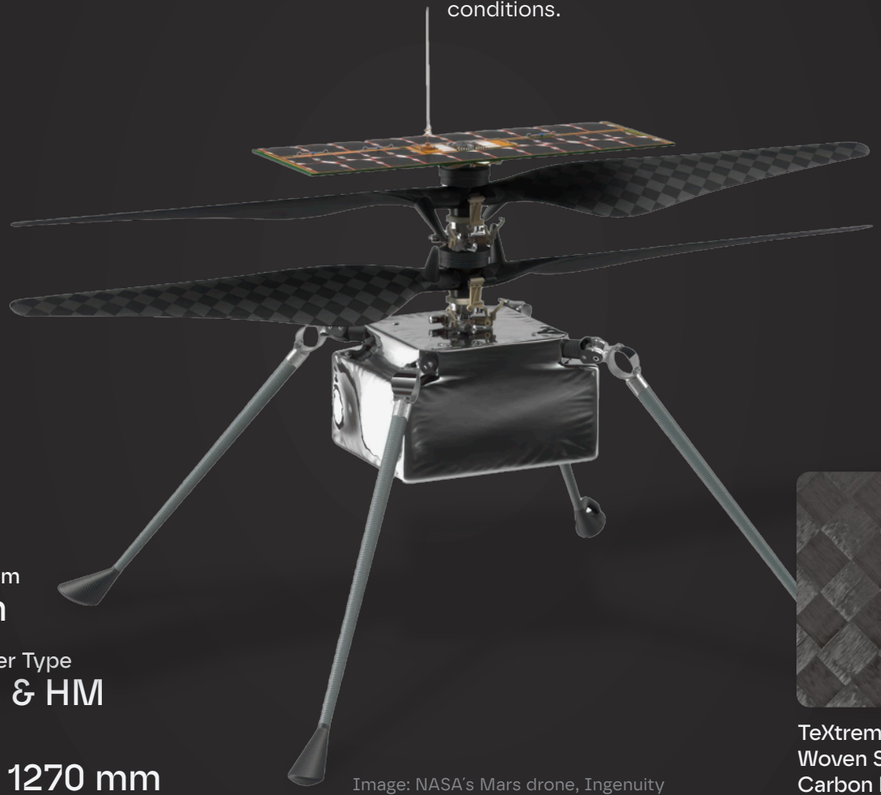
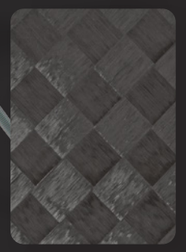


Image: NASA's Mars drone, Ingenuity

Weights from
50 gsm

Carbon Fiber Type
HS, IM & HM

Tape Width
1000 & 1270 mm



TeXtreme® +/-45 Woven Spread Tow Carbon Fabrics

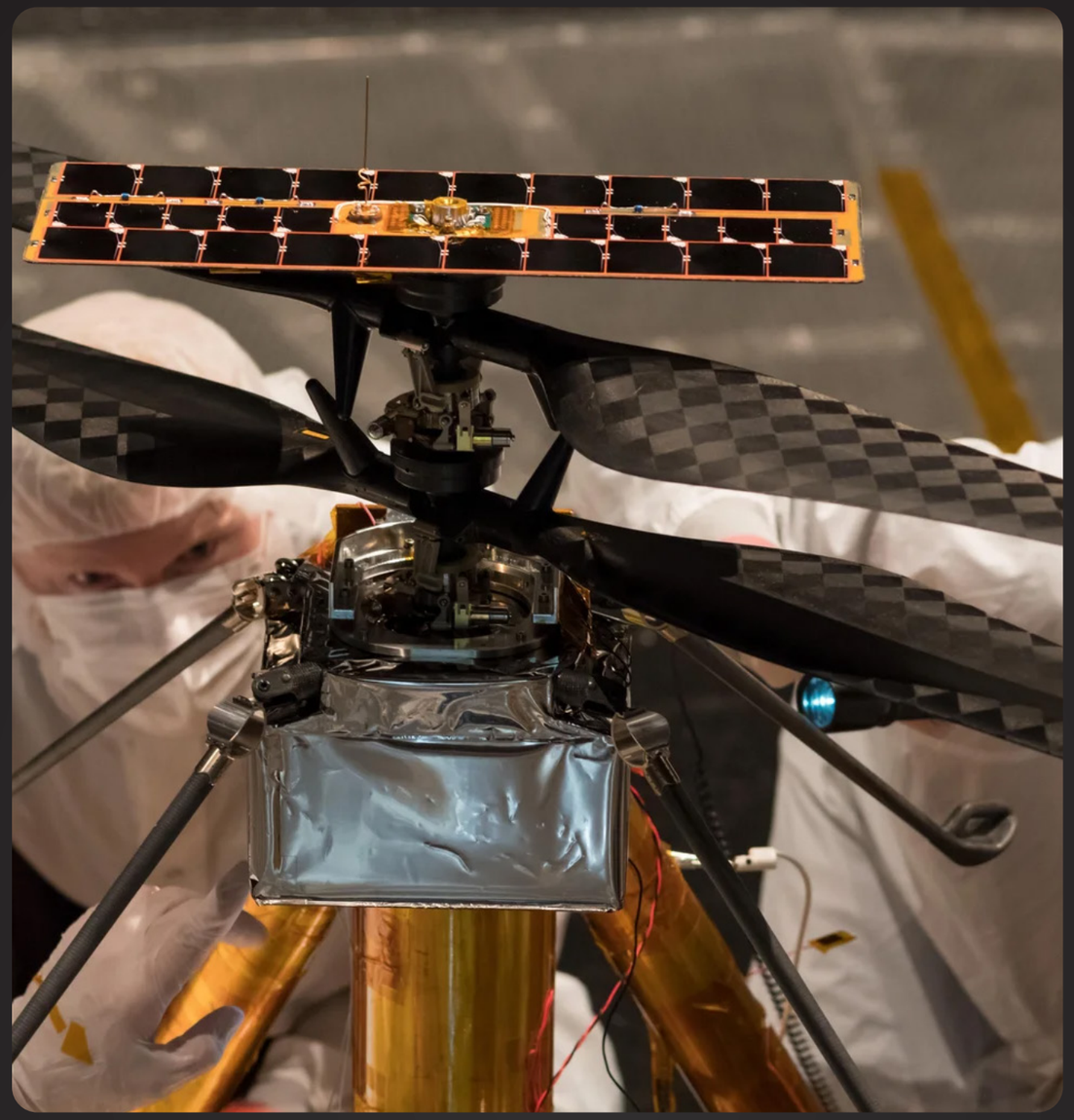


Image: NASA's Mars drone, Ingenuity

Benefits

In lightweight space structures, +/-45 fabrics help improve torsional rigidity and shear performance while keeping material use efficient. This is especially valuable in panels, skins, deployable structures and other components where stability must be maintained without unnecessary weight. For high-altitude aerospace platforms and dynamic flight structures, the material supports resistance to twisting and repeated loading, helping create components that remain structurally reliable over time.

The continuous-length format also improves manufacturing efficiency by reducing splicing risks, minimizing scrap and supporting more repeatable layup. This makes +/-45 fabrics a strong choice for aerospace structures where low weight, production quality and dependable mechanical performance need to work together.

Kerberos Engineering x TeXtreme®

Compact at launch. Capable in orbit. Kerberos Engineering develops lightweight deployable structures for space missions where extreme low mass, high stiffness and reliable deployment are essential.

Making space structures deployable

Kerberos Engineering specializes in the development and production of lightweight structures for space applications. The company develops and manufactures deployable solar panels, masts and complex composite systems designed to remain compact during launch and deploy once in orbit.

Their work addresses one of the defining challenges of modern spacecraft design. Structures must fit within restricted spacecraft volumes, deploy into large functional systems in space and deliver reliable performance under demanding mission conditions. Every gram, every layer and every design decision matters.

Built for extreme constraints

For Kerberos, material selection is directly connected to what the final structure can achieve. Sandwich structures need high stiffness and high strength at minimal weight, while deployable systems require very low material thickness to enable compact, efficient and reliable designs.

Kerberos uses TeXtreme® materials across both sandwich production and deployable structures. For sandwich applications, the company uses an HS fabric to achieve lightweight stiffness and strength. For deployables, Kerberos uses thin fabric solutions and Wide UD materials with UTS50 fiber, supporting the low thickness and efficient reinforcement needed in compact space structures.

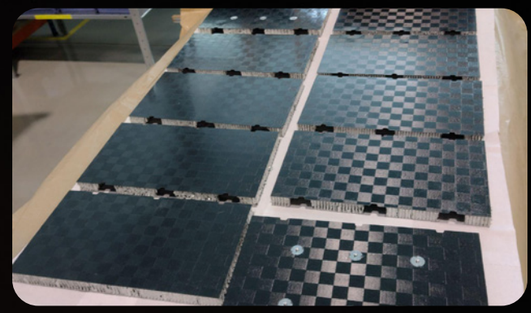


Image: Kerberos Engineering

Material freedom for advanced space design

TeXtreme® gives Kerberos the freedom to combine fiber types, reinforcement architectures and processing routes around the needs of each structure. Compatibility with multiple resins and prepreg options allows Kerberos to develop tailored processes rather than being limited by standard material formats.

That flexibility helps accelerate production and enables solutions that customers cannot find elsewhere. The ability to work with high-performance fabric materials, including high modulus fiber options, has been especially valuable in creating competitive sandwich products where stiffness, weight and manufacturability must work together.

Faster paths to orbit

Using TeXtreme® enables Kerberos to develop specific production processes that make manufacturing faster while maintaining the structural performance required for space applications. In the ESA Celeste panel project, TeXtreme® helped Kerberos deliver panels in record time, shortening traditional timelines by 60 percent while cutting costs by 50 percent.

As spacecraft become larger, lighter and more capable, advanced composites will play an essential role in enabling light, stiff and strong components for the next generation of satellite and aerospace structures. Kerberos Engineering shows how smart material choices and advanced composite design can turn demanding space requirements into manufacturable structures ready for orbit.

Image: Kerberos Engineering

Product Overview

TeXtreme® Wide UD and Woven +/- 45 Spread Tow Carbon reinforcements are available in a range of fiber types, areal weights and widths to support structural optimization across space and high-up aerospace applications. Wide UD is selected when thin unidirectional reinforcement, efficient fiber alignment and scalable impregnation routes are needed. +/-45 fabrics are selected when torsional stiffness, shear performance and multidirectional stability are central to the laminate design.

TeXtreme® Wide Spread Tow UD Tapes

CF	Article	Description	FAW (gsm)	Veil weight (gsm)	Total areal weight (gsm)	Tape width (mm)	Weave Pattern	Fabric width (mm)
HS	5263	TeXtreme® Wide UD HS 57-300	57	4	57	300	N/A	N/A
HM	5315	TeXtreme® Wide UD HM 25-300	25	4	25	300	N/A	N/A
	5283	TeXtreme® Wide UD HM 53-300	53	4	53	300	N/A	N/A
	5323	TeXtreme® Wide UD HM 54-300	53	4	53	300	N/A	N/A

Textreme® +/-45

CF	Article	Description	FAW (gsm)	Binder (gsm)	Areal weight (gsm)	Tape width (mm)	Weave pattern	Fabric width (mm)
HS	3004	TeXtreme® +/-45 HS 80	80	10	90	20	PW	1270
	3001	TeXtreme® +/-45 HS 100	100	10	110	20	PW	1270
	3007	TeXtreme® +/-45 HS 160	160	10	170	20	PW	1270
IM	3011	TeXtreme® +/-45 IM 76	76	10	86	20	PW	1270
HM	3024	TeXtreme® +/-45 HM 50	50	10	60	20	PW	1270
	3025	TeXtreme® +/-45 HM 86	86	10	96	20	PW	1270
	3127	TeXtreme® +/-45 HM 130	130	10	140	20	PW	1270

Whether you are optimizing a satellite panel, deployable solar array, HAPS wing, UAV platform, drone structure or eVTOL component, TeXtreme® can support material selection, laminate optimization and practical process integration. With advanced Spread Tow Thin-Ply reinforcements, engineers can design lighter, thinner and more structurally efficient composite solutions for applications where performance is measured high above the ground.

Image: NASA International Space Station

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