

DYNEEMA® COMPOSITES

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High-performance gear requires best-in-class ingredient materials. And Dyneema® has been supplying world-class composites to leading consumer product designers for more than 15 years.

We use the world's strongest fiber™ to engineer ultralight, exceedingly strong, and fully waterproof Dyneema® composites. In turn, these materials are used by innovative product designers to craft the most durable and robust backpacks, tents, performance footwear, and wind sports equipment on the market.

Discover our unique material constructions – so you can select the best possible ingredient material for your product design.



WHAT IS DYNEEMA®?

Dyneema® is the world's strongest fiber™.

More specifically, it's a premium brand of ultra-high-molecular-weight polyethylene (UHMWPE). Dyneema® is 15 times stronger than steel, yet light enough to float on water. This unbeatable strength-to-weight ratio is used in all our composite materials to minimize weight and maximize durability – enabling products that keep adventurers light on their feet.

With over 30 years of material science expertise and experience, Dyneema® continues to lead the industry in fiber innovation, delivering unmatched strength, durability, and reliability in a range of composite grades.





INTRODUCING DYNEEMA® COMPOSITES

To standardize how we refer to our composite materials, all Dyneema® composites are now grouped under an umbrella term: the Dyneema® Composites Portfolio.

This naming structure provides greater clarity within the markets in which we operate – and makes it easier for all stakeholders to speak about Dyneema® composites in a consistent manner.

Each individual composite within this portfolio can be sub-categorized into one of the following groups:

- **Dyneema® Composite Fabrics** – ultralight, waterproof, and high-strength materials ideal for outdoor gear.
- **Dyneema® Composite Hybrids** – engineered with an additional woven face fabric for enhanced abrasion resistance and specific performance needs.
- **Dyneema® Breathable Composites** – ultralight, high-strength solutions with outstanding breathability that keeps wearers comfortable.

A WIDE RANGE OF END-USE APPLICATIONS

Designers and product development specialists choose Dyneema® when they need a low-weight, high-tensile strength, and high-modulus material for the most demanding applications and end products on the market.

The world's strongest fiber™ has already been used to empower products at the very pinnacle of elite sport, including sailing equipment used during the America's Cup and cycling gear at the Tour de France.



Tents and tarps

Dyneema® is the premium material of choice for tents and tarps in harsh conditions. It enables products that are fully waterproof, highly tear resistant, and won't sag or stretch when wet – offering durable protection at an ultra-low weight.



Packs and bags

The world's strongest fiber™ is the key ingredient in high-performance hiking gear, making backpacks lighter, stronger, and more resistant to cuts and abrasion. Trusted by elite manufacturers, Dyneema® helps adventurers move with comfort and confidence.



High-power footwear

Lightweight footwear uppers reinforced with Dyneema® Breathable Composite offer outstanding breathability and strength.



DIMENSIONAL STABILITY: THE BEDROCK OF EVERY DYNEEMA® COMPOSITE

The core of every Dyneema® composite is a unique structure engineered for unmatched dimensional stability. To construct this core, Dyneema® fibers are layered and bonded at 0° and 90°, creating a structure that doesn't sag or stretch. When combined with woven face fabrics – which themselves tend to stretch easily – the Dyneema® core effectively locks these other layers in place, preventing unwanted deformation and enhancing structural stability and durability.

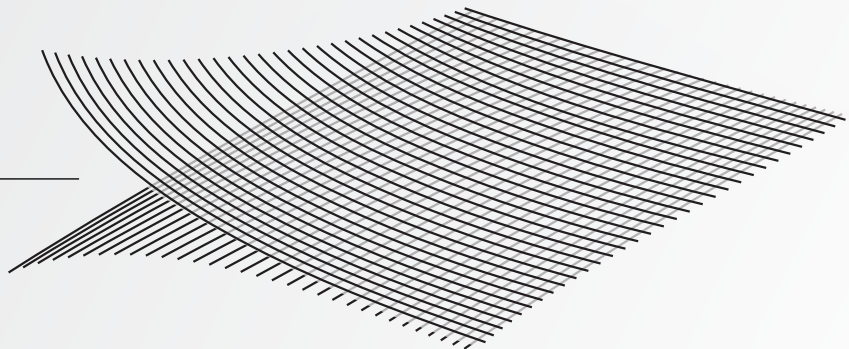
Our Dyneema® composites can also be precisely tailored for strength, elasticity, weight, and thickness, making them highly adaptable to a wide range of performance needs. And, because these composites are built from high-modulus fibers, they exhibit predictable, linear properties that are ideal for high-stakes product designs where reliability is critical.

OUR TRADEMARK DYNEEMA® CORE

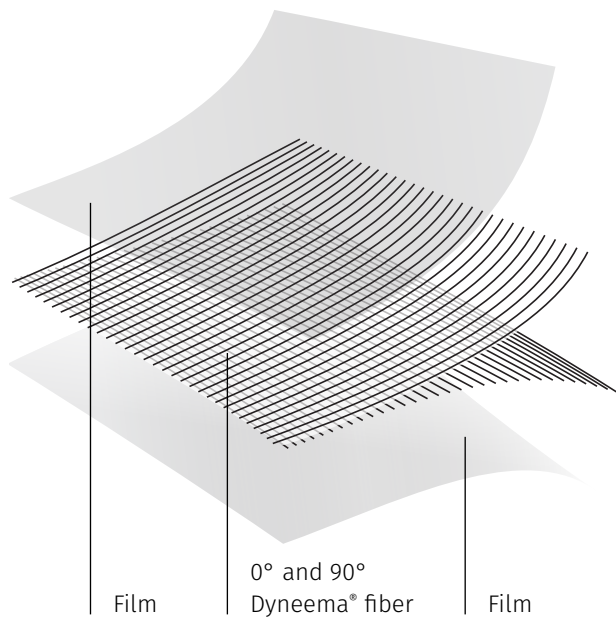
The foundation of our Dyneema® fabrics is our trademark Dyneema® core, constructed with layers of Dyneema® fiber bonded at 0° and 90° orientation. This cross-ply structure forms an ultra-strong, dimensionally stable foundation, where fibers running in perpendicular directions distribute force evenly, minimizing stretch and eliminating weak points.

Unlike conventional woven fabrics, where fibers crisscross loosely and can shift under a significant load, this locked-in structure freezes the fibers in place – ensuring unparalleled tensile strength and low weight.

0° and 90°
Dyneema® fiber



DYNEEMA® COMPOSITE FABRICS



Strength and durability aren't just features of Dyneema® Composite Fabrics – they are built into their very structure. Explore the layer-by-layer construction of our most popularly used composite materials: Dyneema® Composite Fabrics.

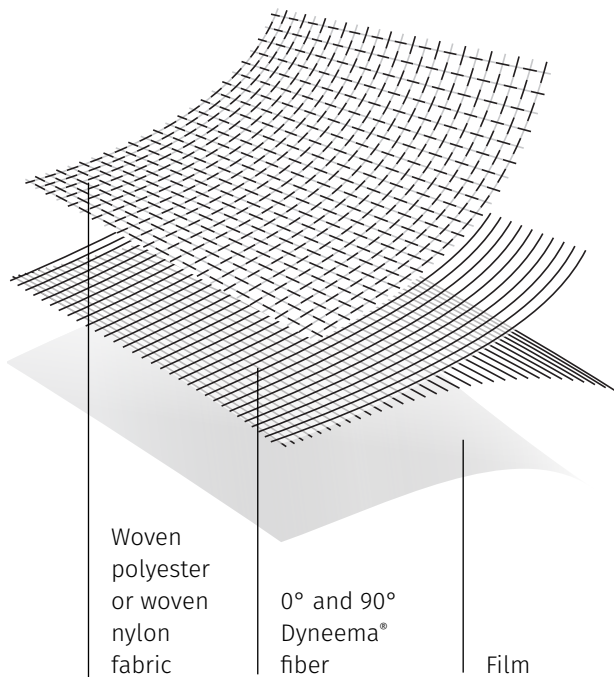
From this rock-solid core, Dyneema® Composite Fabrics are then built out in layers. We add specially engineered face fabrics, films, or coatings to meet specific performance needs – whether it be high hydrostatic resistance, low air permeability, or extra abrasion resistance.

Better yet, the fiber content in the core of any Dyneema® Composite Fabric can be adjusted to finetune strength-to-weight balance, while outer layers can be optimized for waterproofing, breathability, weldability, or industry compliance.

The final product is a fabric that won't tear like pure polyester or nylon, won't absorb water, and won't sag or stretch over time.



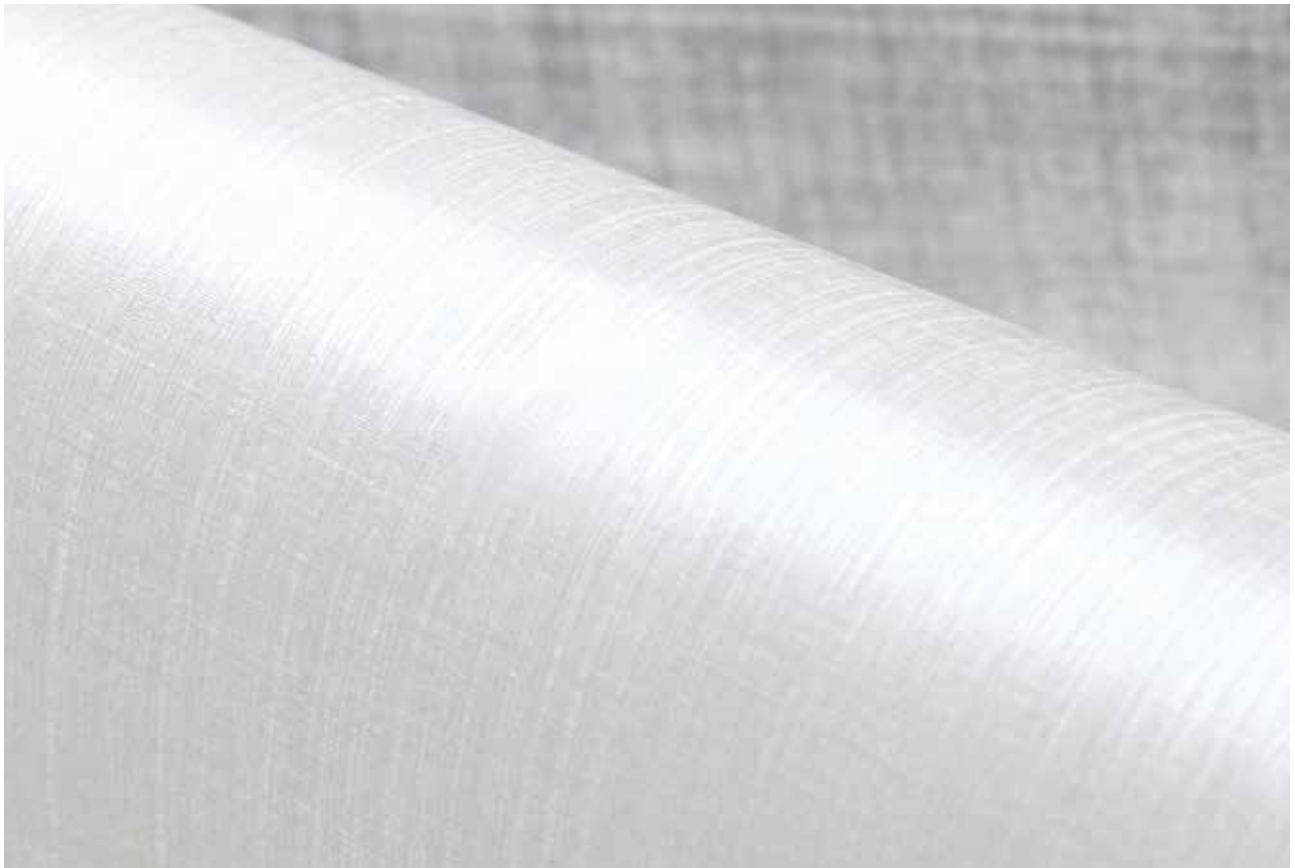
DYNEEMA® COMPOSITE HYBRIDS



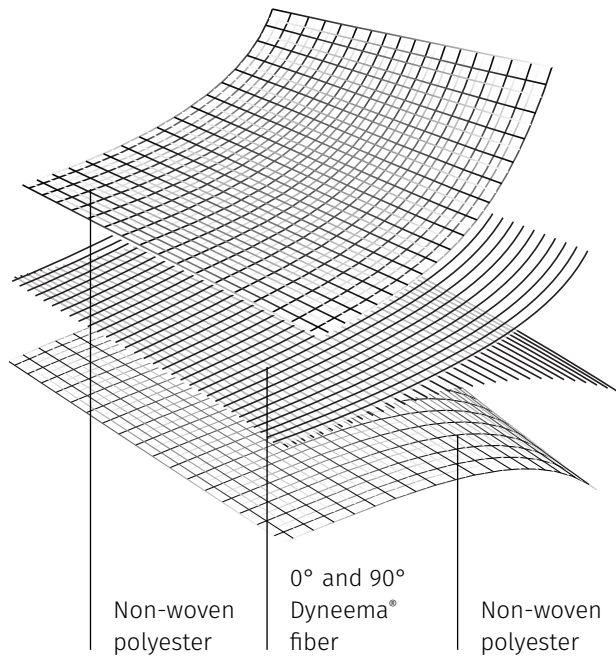
Dyneema® Composite Hybrids combine the strength of Dyneema® with the attributes of a non-Dyneema® face fabric – hence the name “hybrid.”

The great advantage of a Dyneema® Composite Hybrid material is that each layer can be customized to meet specific performance demands. The Dyneema® core provides an exceptional strength-to-weight ratio, while the face fabric introduces additional functionality, such as increased abrasion resistance or enhanced flexibility. A film layer can also be added for waterproofing, or to provide other specialized attributes.

This hybrid approach delivers the best of both worlds – the unrivaled strength and dimensional stability of Dyneema®, combined with the specific performance benefits of a complementary, non-Dyneema® material.



DYNEEMA® BREATHABLE COMPOSITES



Combining the strength of Dyneema® with a carefully designed structure that optimizes airflow, Dyneema® Breathable Composites are engineered for weight-saving comfort and high performance in products like footwear, backpacks, and apparel.

Dyneema® Breathable Composites are designed to be bonded to leather or other natural and synthetic materials. By enabling a unique combination of abrasion resistance and breathability, these composites allow for reduced use of these conventional materials, making it ideal for light, strong, and robust applications.



OPTIMAL STRENGTH-TO- WEIGHT RATIO

Unlike conventional fabrics, Dyneema® composites are engineered to strike the ideal balance between strength and weight. But since this can differ depending on the application, Dyneema® composites are available in a range of linear densities.

With fabric weights in this guide ranging from 0.55 oz/yd² to 5.9 oz/yd² (19 gsm to 200 gsm), Dyneema® allows for precise customization – delivering the ideal performance properties needed at the required weight.

If you require a composite material with a specific strength or weight not listed in this guide, contact our experts.

KEY PERFORMANCE BENEFITS

Dyneema® is the world's strongest fiber™ – and not by accident. Every composite we produce is molecularly engineered and meticulously designed to meet the unique demands of end-use applications.

Key attributes include:



Waterproof and low water absorption – keeps gear dry without adding weight.



Superior abrasion resistance – withstands friction, rough surfaces, and repeated use.



Zero stretching or sagging – maintains its shape under heavy loads.



Enhanced structural integrity – reinforces any attached materials for increased stability.



Breathability – optimized air movement for enhanced comfort.



Robust dimensional stability – maintains its form under mechanical stress and temperature changes.

RIGOROUS TESTING

Every Dyneema® composite undergoes extensive laboratory testing by our technical experts – to validate its performance characteristics and reliability for end-use applications.

Our global in-house laboratories conduct:

- **Tensile testing**
- **Tear testing**
- **Puncture testing**
- **Peel strength testing**
- **Taber abrasion testing**
- **Hydrostatic head testing (waterproofness)**
- **Precision microscopy**

BEYOND THE LAB

We also partner with our customers to perform real-world field testing. That way, we're certain that our materials perform reliably in demanding environments.

Independent third-party testing provides further validation, ensuring Dyneema® consistently delivers top-class performance in a range of end products.

LIGHTER ON OUR PLANET

All Dyneema® composites are made with Dyneema® fiber produced from bio-circular raw materials. Bio-circular raw materials are by-products from the pulp and timber industries which are collected as renewable feedstock. Dyneema® fiber produced in this way has a smaller carbon footprint than conventional Dyneema®.

- **The world's first HMPE fiber produced with bio-circular raw materials**
- **Classified as bio-circular by the International Sustainability and Carbon Certification (ISCC)**

NO INTENTIONALLY ADDED PFAS

The unique properties of Dyneema® composites mean they can achieve desirable levels of water resistance without needing PFAS-based surface treatments.

FABRIC OVERVIEW

Material	SKU	Color	Weight (oz/yd ²)	Weight (g/m ²)	Construction	Maximum Tensile Strength (ASTM D3039)	Tear Strength (Slit method Mil-C-21189 10.2.4)	Puncture Resist- ance (ASTM F1342 Probe B)	Water Resistance mmH2O (AATCC TM127)
Dyneema® Composite Fabric									
0.55	CT1E.08	Standard - Grey	0.55	19	Polyester film - 0°/90° Dyneema® fiber - Polyester film	63 lb/in	14 lb	1.8 lb	15,000 mmH2O
	CT1E.08 BL3	Blue	0.55	19	Polyester film - 0°/90° Dyneema® fiber - Polyester film	63 lb/in	14 lb	1.8 lb	15,000 mmH2O
	CT1E.08 Black	Black	0.55	19	Polyester film - 0°/90° Dyneema® fiber - Polyester film	63 lb/in	14 lb	1.8 lb	15,000 mmH2O
	CT1E.08 OD2	Olive Drab	0.55	19	Polyester film - 0°/90° Dyneema® fiber - Polyester film	63 lb/in	14 lb	1.8 lb	15,000 mmH2O
	CT1E.08 G5	Spruce Green	0.55	19	Polyester film - 0°/90° Dyneema® fiber - Polyester film	63 lb/in	14 lb	1.8 lb	15,000 mmH2O
0.66	CT1E.08/K18	Standard - Grey	0.66	22	Polyester film - 0°/90° Dyneema® fiber - Polyester film	63 lb/in	14 lb	1.9 lb	15,000 mmH2O
0.75	CT2E.08	Standard - Grey	0.75	25	Polyester film - 0°/90° Dyneema® fiber - Polyester film	104 lb/in	18 lb	3.1 lb	20,000 mmH2O
	CT2E.08 Black	Black	0.75	25	Polyester film - 0°/90° Dyneema® fiber - Polyester film	104 lb/in	18 lb	3.1 lb	20,000 mmH2O
	CT2E.08 G5	Spruce Green	0.75	25	Polyester film - 0°/90° Dyneema® fiber - Polyester film	104 lb/in	18 lb	3.1 lb	20,000 mmH2O
	CT2E.08 OD	Light Olive	0.75	25	Polyester film - 0°/90° Dyneema® fiber - Polyester film	104 lb/in	18 lb	3.1 lb	20,000 mmH2O
0.96	CT2K18	Standard - Grey	0.96	33	Polyester film - 0°/90° Dyneema® fiber - Polyester film	104 lb/in	21 lb	3.1 lb	20,000 mmH2O
	CT2K18 Black	Black	0.96	33	Polyester film - 0°/90° Dyneema® fiber - Polyester film	104 lb/in	21 lb	3.1 lb	20,000 mmH2O
1.3	CT3.5K18 Black	Black	1.3	43	Polyester film - 0°/90° Dyneema® fiber - Polyester film	155 lb/in	27 lb	4.2 lb	>20,000 mmH2O
1.6	CT5K18	Standard - Grey	1.6	53	Polyester film - 0°/90° Dyneema® fiber - Polyester film	191 lb/in	34 lb	5.2 lb	>20,000 mmH2O
	CT5K18 BL3	Blue	1.6	53	Polyester film - 0°/90° Dyneema® fiber - Polyester film	191 lb/in	34 lb	5.2 lb	>20,000 mmH2O
	CT5K18 Black	Black	1.6	53	Polyester film - 0°/90° Dyneema® fiber - Polyester film	191 lb/in	34 lb	5.2 lb	>20,000 mmH2O
	CT5K18 OD	Light Olive	1.6	53	Polyester film - 0°/90° Dyneema® fiber - Polyester film	191 lb/in	34 lb	5.2 lb	>20,000 mmH2O
	CT5K18 OD2	Olive Drab	1.6	53	Polyester film - 0°/90° Dyneema® fiber - Polyester film	191 lb/in	34 lb	5.2 lb	>20,000 mmH2O
Dyneema® Composite Hybrid									
3.2	CT5K18/wov.32c	Standard - White	3.2	108	50d Woven polyester - 0°/90° Dyneema® fiber - Polyester film	245 lb/in	42 lb	7.3 lb	>20,000 mmH2O
	CT5K18/blkwov4	Black	3.1	104	50d Woven polyester - 0°/90° Dyneema® fiber - Polyester film	245 lb/in	42 lb	7.3 lb	>20,000 mmH2O
3.8	CT9HK18/wov.32c	Standard - White	3.8	128	50d Woven polyester - 0°/90° Dyneema® fiber - Polyester film	302 lb/in	43 lb	9.1 lb	>20,000 mmH2O
	CT9HK18/blkwov4	Black	3.7	124	50d Woven polyester - 0°/90° Dyneema® fiber - Polyester film	302 lb/in	43 lb	9.1 lb	>20,000 mmH2O
5.0	CT9HK18/CC8	Multicam®	5.0	170	70d Nylon - 0°/90° Dyneema® fiber - Polyester film	257 lb/in	61 lb	11 lb	>20,000 mmH2O
	CT9HK18/BKC29	Black	5.0	170	70d Nylon - 0°/90° Dyneema® fiber - Polyester film	257 lb/in	61 lb	11 lb	>20,000 mmH2O
5.1	CT9HK18/wov6	Standard - White	5.1	174	150d Woven polyester - 0°/90° Dyneema® fiber - Polyester film	326 lb/in	68 lb	9.1 lb	>20,000 mmH2O
5.9	CT9HK18/blkwov6	Black	5.9	200	150d Woven polyester - 0°/90° Dyneema® fiber - Polyester film	326 lb/in	68 lb	9.1 lb	>20,000 mmH2O
Dyneema® Breathable Composite									
1.1	CTM2H2	Standard - White	1.1	38	Non-woven polyester - 0°/90° Dyneema® fiber - Non-woven polyester	91 lb/in	18 lb	3.7 lb	N/A

WANT MORE INFORMATION?

Find our full range of Dyneema® composites
in the Dyneema® Fabric Finder at

www.dyneema.com.

Or scan this QR code to explore all our
available grades:



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