

TeXtreme®



TeXtreme®  
Technology  
for Modern Racket  
Performance

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# TeXtreme® Technology for Modern Racket Performance

Racket sports demand fast response, precise feel and durability under repeated high-energy impacts

TeXtreme® Spread Tow Thin-Ply Technology is engineered to help designers and brands achieve high stiffness-to-weight efficiency and consistent laminate quality, enabling rackets that feel stable at contact, recover quickly and deliver controlled power without unnecessary mass.

Across padel, table tennis, tennis, pickleball, badminton and squash, the performance target

is similar, predictable behavior under dynamic loading, optimized flex profiles and a construction that retains its characteristics throughout the product's lifetime. TeXtreme® reinforcement architectures support this by improving fiber alignment and load transfer efficiency, helping reduce waviness and enabling cleaner structural performance in lightweight composite builds.

## What TeXtreme® Enables in Rackets

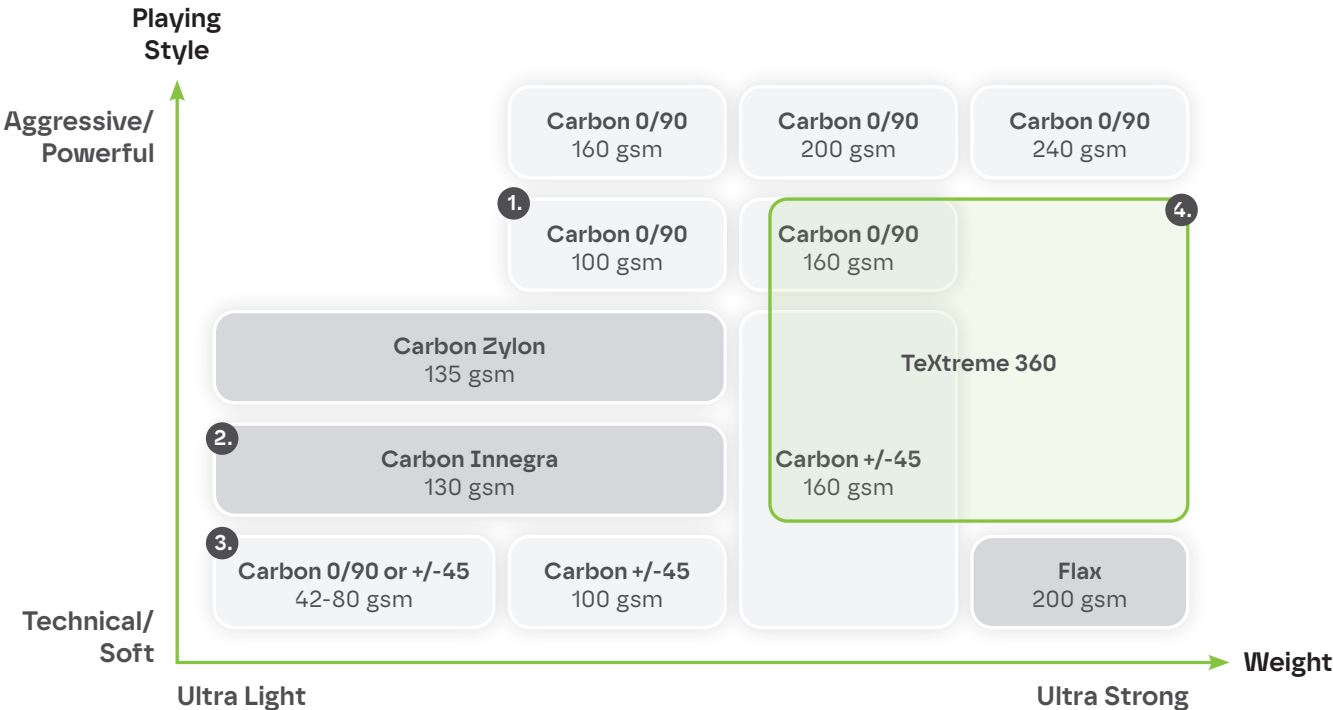
TeXtreme® materials are used to tune the key attributes that define a high-performing racket:

- **Stability at impact for more confidence on off-center hits**
- **Efficient energy transfer for controlled power generation**
- **Responsive recovery for fast exchanges and quick transitions**
- **Refined feel through more predictable structural behavior**
- **Repeatable manufacturing outcomes through consistent reinforcement quality**

# How to choose the right TeXtreme® solution for rackets

Racket performance is shaped by the balance between weight, structural strength and playing characteristics. Material selection directly influences how a racket responds in play, affecting power transfer, control, feel and durability.

The diagram maps different reinforcement solutions across two dimensions: playing style and structural demand.



The vertical axis reflects playing style, ranging from technical/soft to aggressive/powerful. Materials positioned higher typically support faster swings and higher impact loads, while materials lower on the scale contribute to a more controlled feel and vibration comfort.

The horizontal axis reflects structural demand, moving from ultra-light to ultra-strong. Lighter reinforcements support reduced mass and faster handling, while stronger solutions are chosen when higher stiffness, stability and durability are required.

Traditional woven carbon fabrics in 0/90 and +/-45 orientations provide proven performance for tuning stiffness and torsional response across a wide range of racket designs. Hybrid and alternative reinforcements can further shift the balance toward comfort and feel.

TeXtreme® 360 occupies a distinct position by enabling high structural efficiency with reduced ply count, supporting strong and stable racket constructions without unnecessary weight. This makes it particularly effective in designs that require a confident, powerful response while maintaining control.



## Designed for High-Speed Rallies and Control Under Pressure

In padel and pickleball, points are often decided in fast exchanges close to the net, where stability and predictable rebound matter as much as power. Composite architectures that increase torsional stability and maintain control on imperfect hits help players stay aggressive without losing precision. TeXtreme® solutions support this by enabling stable laminates with efficient load transfer, helping maintain a controlled, confidence-inspiring response.



## Performance for Power, Recovery and Long-Term Durability

In tennis, designers often balance power with stability and comfort, especially under repeated impacts and high string-bed loads. TeXtreme® can be integrated to support stiffness-to-weight targets and structural efficiency, enabling lighter designs with stable performance characteristics and consistent feel over time.



## Built for Precision, Touch and Repeatability

In table tennis, the blade must deliver extremely consistent feedback, where small differences in stiffness and vibration behavior change how the racket plays. Spread Tow-based architectures help create controlled structural properties with high repeatability, supporting designs that are tuned for speed, spin generation and feel. Similar advantages translate to badminton and squash, where rapid handling and accuracy depend on a stable yet responsive structure.

### Typical Application Areas in a Racket

TeXtreme® materials can be used strategically across the structure, for example:

- **Face / hitting zone: stability, controlled rebound, predictable feel**
- **Frame / perimeter: torsional stiffness and structural integrity**
- **Neck / throat transitions: reinforcement of critical load paths**
- **Localized zones: balancing stiffness and mass distribution to tune behavior**

# Let's Build Your Next Racket Platform

If you want to explore TeXtreme® solutions for padel, table tennis, pickleball, tennis, badminton, or squash, whether you are optimizing an existing layup or developing a new platform, our team can support with material selection guidance and practical implementation recommendations.



# TeXtreme® 360°

Developed for high-performance applications, this advanced composite material enhances strength, expands design possibilities, and optimizes manufacturing efficiency.

TeXtreme® 360° redefines composite processing through its ultra-thin, randomly distributed Spread Tow Tape construction. This refined structure enables efficient part formation while increasing durability and structural integrity. The result is a lightweight solution that meets the highest standards for precision and performance.

## Benefits

In-plane isotropy ensures uniform properties in all directions, optimizing laminate design. Exceptional flexibility allows seamless draping over complex geometries, while an ultra-thin profile, as low as 0.5 mm, contributes to high-strength, lightweight composites. Compatibility with various prepreg materials further enhances multi-material applications, maximizing efficiency and structural performance.



Tape width  
**10 –20 mm**

Weights  
**250-900 gsm**

Carbon Fiber Type  
**HS, IM, HM & Mixed**

Reinforcement Type  
**Prepreg or Dry**

Fabric Width  
**600 mm**



TeXtreme® 360°

# TeXtreme® 0/90 Woven Spread Tow Carbon Fabrics

Engineered for ultra-lightweight applications, TeXtreme® 0/90 fabrics combine strength, surface smoothness, and impact resistance to deliver superior performance.

Constructed from two Spread Tow UD tapes woven as warp and weft, this advanced material ensures optimal mechanical properties while maintaining minimal weight. Available in weights starting from 42 gsm and widths from 0.6 meters, it provides a refined balance of durability and structural integrity.

## Benefits

Biaxial properties integrate the performance of cross-ply with the drapeability of woven fabrics, enabling optimized layups with fewer plies. This results in lighter, stronger components while streamlining production and reducing costs. The smooth surface enhances ductility and impact resistance, making it ideal for applications requiring both strength and durability.



Tape width  
**10 –20 mm**

Weights from  
**42 gsm**

Carbon Fiber Type  
**HS, IM & HM**

Fabric Width  
**Up to 2000 mm**



TeXtreme® 0/90  
Silver Carbon

# TeXtreme® 0/90 Woven Spread Tow Hybrid Fabrics

**Stiffness from carbon fibers and toughness from ductile fibers achieved with minimal weight penalty.**

TeXtreme® hybrid fabrics combine multiple fiber types to create reinforcements designed for applications requiring both strength and durability. Available in various configurations, these materials optimize mechanical performance by balancing impact resistance and vibration dampening. Developed for demanding environments, they maintain structural integrity while minimizing weight.

## Benefits

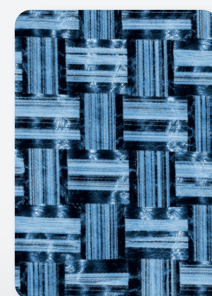
Engineered for impact resistance, these fabrics reduce the risk of complete laminate failure while providing exceptional vibration dampening. The result is a high-performance composite solution that enhances durability, ensures structural stability, and extends component lifespan.



Weights from  
**100 gsm**

Hybridisation Fiber  
**PP, PBO, Aramides  
& UHMWPE**

Fabric Width  
**Up to 2000 mm**



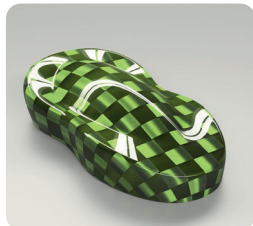
**0/90 Colored  
Carbon Innegra**

# TeXtreme® Colored

Color integration in composite materials creates new opportunities for design and branding, delivering a distinctive and refined appearance.



Asprey  
Pantone 2090c



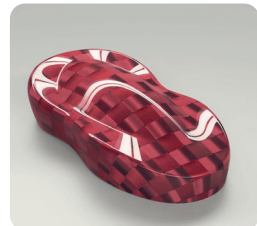
Bolt  
Pantone 7765c



Chapel  
Pantone 282c



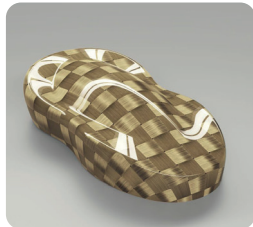
Copper  
Pantone 725c



Enzo  
Pantone 711c



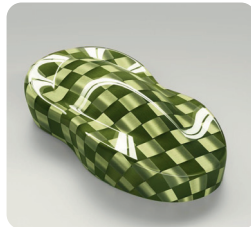
Jet Black  
Pantone 6c



Malabar  
Pantone 144c



Margaux  
Pantone 262c



Michelangelo  
Pantone 2427c



Oak  
Pantone 490c



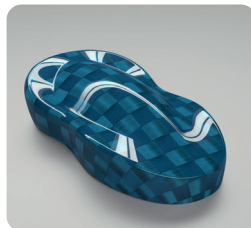
Prost  
Pantone 288c



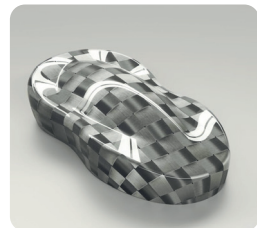
Spa  
Pantone 7725c



Suzuka  
Pantone 218c



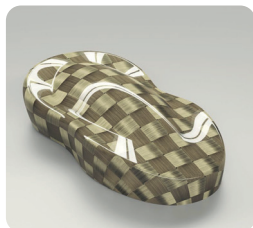
Tendulkar  
Pantone 3005c



Titanium  
Pantone 877c



Yaz  
Pantone 627c



Zlatan  
Pantone 102c



Zandvoort  
Pantone 165c



Moss  
Pantone 355c



Zidane  
Pantone 655c

In collaboration with Hypetex®, TeXtreme® offers a wide range of colored fabrics, enabling the customization of Spread Tow reinforcements for a distinctive, high-end aesthetic. This innovation enhances design possibilities while maintaining the advanced performance characteristics of the material.

## Benefits

TeXtreme® Colored fabrics eliminate the need for additional coloring processes, reducing material waste and avoiding unnecessary weight. Incorporating color directly into the composite achieves a lightweight design without compromising strength or durability.

# STIGA Sports x TeXtreme®

This collaboration serves as an example of how TeXtreme® materials are applied in real-world racket product.

## Swedish Innovation, Shaped for the Next Era of Racket Sports

STIGA Sports has a long tradition of developing equipment where engineering precision and performance feel are treated as the same problem. From elite table tennis heritage to modern multi-sport expansion, STIGA's approach is built around designing structures that respond exactly as players expect, under speed, pressure and repeated high-intensity use.

When STIGA entered padel in 2019, the objective was not simply to participate in a fast-growing market, but to develop a product platform that could compete on performance and identity. The Cybershape design language reflects that ambition: a distinctive geometry developed to support modern play, stability and maneuverability, while giving STIGA a recognizable signature across the category.



## TeXtreme® as a Performance Enabler

The collaboration with TeXtreme® adds a material platform that supports STIGA's performance-driven design philosophy. By enabling high stiffness-to-weight efficiency and consistent reinforcement quality, TeXtreme® helps unlock greater control over flex profiles, stability and recovery speed, key parameters in padel where racket response and predictability directly influence confidence in both defensive and attacking play.



## AXE 4 and Performance Validation

In the development of STIGA's AXE series, the performance requirements were clear: high stability during intense exchanges, controlled power in overhead play and a refined response that remains predictable across the full hitting area. Testing under representative playing conditions highlighted TeXtreme® as the material solution that best aligned with these targets, supporting the final construction strategy in AXE 4 and reinforcing STIGA's direction toward next-generation padel performance.

# Responsible Performance

**Racket sports demand fast  
response, precise feel and  
durability under repeated  
high-energy impacts**

TeXtreme® works with a sustainability mindset focused on material efficiency, process awareness and continuous improvement across the value chain. In sports applications, lightweighting and structural efficiency are not only performance advantages—they also support smarter material use and optimized manufacturing outcomes.

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