FORGET WHAT YOU KNOW ABOUT CARBON FIBER PLATES.

Carbitex AFX and DFX keep all the benefits of traditional carbon fiber composites without the compromises. They also add new functionality to increase performance, reduce fatigue, and help keep the foot safe.

Simply put, AFX and DFX set new standards for carbon fiber plates in footwear.

FOOTWEAR MATERIALS SHOULD WORK WITH THE FOOT, NOT AGAINST IT.

26 BONES
33 JOINTS
100+ MUSCLES
THE FOOT HAS ENOUGH GOING ON.
1. High Forefoot Flex - Allows the foot to easily bend. Reducing fatigue and increasing performance.

2. Stiff to increase, stability, responsiveness, and protection.

**ASYMMETRIC FLEX - STIFF ONE WAY. FLEXIBLE THE OTHER.**

**TRADITIONAL MATERIALS FLEX EQUALLY IN BOTH DIRECTIONS. AFX CARBON FIBER PLATES ARE FLEXIBLE IN ONE DIRECTION AND STIFF IN THE OTHER.**

AFX WORKS WITH THE FOOT, NOT AGAINST IT:

The human foot is asymmetric—it bends more one way than the other. Traditional carbon fiber plates bend the same in both directions. This means increasing stability and protection reduces forefoot flexibility—increasing fatigue and reducing performance. It’s an unfortunate compromise. AFX plates are asymmetrically flexible, just like the foot. No compromise.

**TRADITIONAL CARBON FIBER PLATES**

- High Flex Forefoot/Low Stability/Low Protection
- Low Forefoot Flex/High Stability/High Protection
FUNCTION

PLANTAR STIFFNESS & FOREFOOT FLEXIBILITY
Prevents the foot from over flexing without limiting forefoot flexibility.

STABILITY & FLEXIBILITY
Provides a high-level of stability and protection without limiting forefoot flexibility.

POWER INCREASE
Prevent the foot from bending in the opposite direction of your forward motion enabling more energy into your step.

ENHANCES FOOT PERFORMANCE
Works with the foot to enhance its natural movement.

FEATURES

ASYMMETRIC FLEXIBILITY
Flexible in one direction and stiff in the other.

LIGHTWEIGHT
Maintains carbon fiber’s lightweight characteristics.

MULTIDIMENSIONAL FLEXIBILITY
Tunable longitudinal, lateral - medial, and torsional flexibility.

CONSISTENT PERFORMANCE
Flex for millions of cycles and maintain performance.

RATIO
Comes in a variety of flexibility ratios.

LIGHTWEIGHT
Maintains carbon fiber’s lightweight characteristics.

MULTIDIMENSIONAL FLEXIBILITY
Tunable longitudinal, lateral - medial, and torsional flexibility.

CONSISTENT PERFORMANCE
Flex for millions of cycles and maintain performance.

RATIO
Comes in a variety of flexibility ratios.
APPLICATION: TRAIL RUNNING

Trail runners require a combination of comfort, support, and flexibility to rapidly traverse uneven terrain. Minimalist shoes don’t offer enough support and “maximalist” shoes can be bulky and heavy. AFX enables a high level of stability and protection without limiting forefoot flexibility.

APPLICATION

AFX carbon fiber plates provide a high-level of stability and protection without limiting forefoot flexibility to increase performance and reduce fatigue in a wide range of applications.

Here are a few applications to consider.

CLEATED SPORTS
- Reduce stud pressure
- Forefoot flexibility to enhance performance

OUTDOOR
- Rock plate protection, with high forefoot flexibility
- Reduce fatigue

MOTORCYCLE
- Performance on bike, flexibility for walking off bike

SNOWBOARD
- Stiff on board, flexibility for walking off board

WORK BOOT
- Increase stability and protection without limiting forefoot flex
- Reduce size and weight of midsole
- Reduce fatigue

FASHION
- High performance without the bulk
Stress-strain graphs depict behavior of both sides of AFX samples. Tested using ASTM-D790.

**EXAMPLE 1**

DFX PLATES EXPONENTIALLY INCREASE STIFFNESS TO OPTIMIZE PERFORMANCE IN CHANGING SCENARIOS.

For instance, DFX can offer sneaker-like flexibility when walking and track spike stiffness when sprinting. It’s like gears for your feet.
TRADITIONAL MIDSOLES
Traditional midsoles are made for one purpose or they compromise.

STIFF
Sprinting

MID-FLEX
Running

HIGH-FLEX
Walking

MIDSOLES + DFX
Midsoles with DFX change dynamically to optimize performance. No compromise.

FEATURES

DYNAMIC FLEX
Non-linear increase in stiffness when flexed.

TUNABLE
Tunable for virtually every performance footwear category.

LIGHTWEIGHT
Maintains carbon fiber’s lightweight characteristics.

CONSISTENT PERFORMANCE
Flex for millions of cycles and maintain performance.
FUNCTION

ENERGY CONSERVATION
Increases energy conservation by dynamically increasing stiffness.

ENHANCES FOOT PERFORMANCE
Works with the foot to enhance its natural movement.

JUMPING
Maximizes the energy put into the jumping motion. Proven to increase vertical.

TURF TOE
Exponentially increases stiffness to prevent MTP joint from over-rotating.

OPTIMIZE PERFORMANCE.
APPLICATION: CLEATED SPORTS

Athletes in cleated sports need to walk, run, sprint, and jump. DFX plates enable dynamic flexibility, in other words, high flexibility when walking, and stiff performance when sprinting and jumping.

ACTUAL CLEATED SHOES WITH DFX INTEGRATED INTO OUTSOLE.

APPLICATION

DFX carbon fiber plates dynamically change to optimize performance in a wide range of applications.

Here are a few applications to consider.

CLEATED SPORTS
- Gearing - flexible when walking, stiff when sprinting

FOOTBALL
- Turf toe protection
- Reduce fatigue

RUNNING
- Energy conservation
- Reduce fatigue

OUTDOOR
- Energy conservation
- Reduces fatigue

BASKETBALL
- Increase vertical
- Gearing - flexible when walking, stiff when sprinting

TRAINING
- Increase vertical
- Gearing - flexible when walking, stiff when sprinting
**DFX SAMPLE DATA**

**DFX 30° FORM: TORQUE/ANGLE**

**EXTREME PERFORMANCE. EXCEPTIONALLY FLEXIBLE.**

Carbon fiber has the highest tensile strength of any commercially available fiber. And within its operating limits, it doesn’t stretch. Carbitex CX6 harnesses these key characteristics in an exceptionally flexible form - enabling carbon fiber performance in soft applications. Applications include footwear, sports equipment, and travel products.
More responsive than a hard shell boot, as comfortable as a soft shell boot.

Radar’s Vapor water ski boot utilizes Carbitex CX6 to harness the responsiveness of carbon fiber, while remaining flexible to form around your foot. The integration has proven to be the most reactive connection Radar has ever tested, in addition to being incredibly durable. The Vapor boot provides control on demand.

APPLICATION:
SKI BOOT
Luxury travel brands, like Tumi and Porsche Design, required a customized CX6 to withstand the rigors of business travel while being flexible, soft to the touch, and sophisticated.

APPLICATION: CYCLING SHOE

To enable ultimate power transfer Scott Sports sought to use carbon fiber because it has the highest tensile strength of any commercially available fiber and has virtually zero elongation. Scott Sports selected Carbitex CX6 because it harnesses carbon fibers performance characteristics in an exceptionally flexible form. CX6 enables a glove like fit and zero energy loss to the pedals.

APPLICATION: LUGGAGE & WALLETS
POWER TRANSFER
Low stretch property increases power transfer.

IMMEDIATE RESPONSE
Quick power transfer enables rapid response.

MANUFACTURING INTEGRATION
Compatible with traditional cut-and-sew methods as well as advanced manufacturing methods.

TUNABLE PERFORMANCE
Tensile strength, abrasion resistance, UV stability, tongue tear, etc.

FUNCTION

LIGHTWEIGHT
Maintains carbon fiber’s lightweight characteristics.

MODERN AESTHETIC
CX6 is available in over 30 combinations of weaves, weights, colors, and finishes.

EFFICIENCY
Carbon fiber’s high strength to weight ratio means you can use less to achieve results. Lower weight and less bulk.
APPLICATION

CX6 carbon fiber applies to fashion products from backpacks to belts to footwear uppers.

These are just a few applications to think about.

MESSAGE FROM OUR FOUNDER

Carbitex was born with the passion for the future and the belief that advanced materials are often times a prerequisite – the missing piece. To this end, we aim to support brands with our technology who are truly seeking to break through preconceived notions and standards.

We are fanatical about bringing technology to market that we know provide both measurable and felt benefits to consumers. Not only does this dedication enable us to produce technology found nowhere else, but it has allowed us to support our customers from concept through manufacturing integration.

We believe the definition of a new standard is a when technology eliminates compromises important to consumers, is cost justified, and can be integrated into existing manufacturing methods. If you agree, then let us show you how our technologies represent new standards of performance.

Doing things that have never been done is never easy, but we find it to be the most rewarding and exciting.

Junus Khan
FOUNDER OF CARBITEX