

AFX & DFX FOOTWEAR DESIGN GUIDELINES

CARBON FIBER PLATE OPTIMUM DESIGN GUIDELINES

1. Carbitex plates may be designed in full or partial profile to maximize plate function and material usage.
2. Preferred Characteristics for optimum AFX/DFX benefits are (Figure 1)
 - a. SMOOTH CONTOURS to minimize stress concentrations
 - b. MAXIMIZE SURFACE AREA (Within design constraints) to optimize use of fibers (strength + performance)
 - i. Width of plate can be adjusted to increase/decrease flex in certain areas.
 - c. FLAT PLATE PROFILE is the most cost-effective approach
 - i. If 3D contour is required, limit to toe to heel curve
 - ii. For all other 3D contours contact Carbitex for design guidance designsupport@carbitex.com
 - iii. Flat AFX/DFX plates will form to slight contours in mold
3. Design characteristics to avoid (reduces fiber strength and AFX/DFX properties)
 - a. Forked or Narrow surface areas (Figure 2)
 - b. Avoid holes, especially in flex zone
 - i. If needed for part locator in tool, keep to minimum size and maintain perpendicular to the flat plate
 - c. Avoid sharp radius cutouts
4. Visible Window on bottom of outsole
 - a. If design will utilize a visible window to show the Carbitex plates on the shoe bottom, contact Carbitex for design guidance designsupport@carbitex.com
5. Molding and Bonding Considerations see “AFX & DFX Molding and Bonding Guidelines” at <https://www.carbitex.com/AFXDFXMoldingandBondingGuidelines.pdf>
6. Optimizing material yield
 - a. Nesting pattern must be in proper alignment with fibers - Use heel to toe fiber alignment with only minor deviations to avoid plate twisting
 - i. Cut profile with fibers in alignment with flex line (Figure 3)
 - ii. If material is identified with a specified cutting direction the nesting should align parts with that direction
 - b. Consider part nesting optimization when designing the AFX/DFX plates
 - i. Slight modifications to width / length can increase part yield

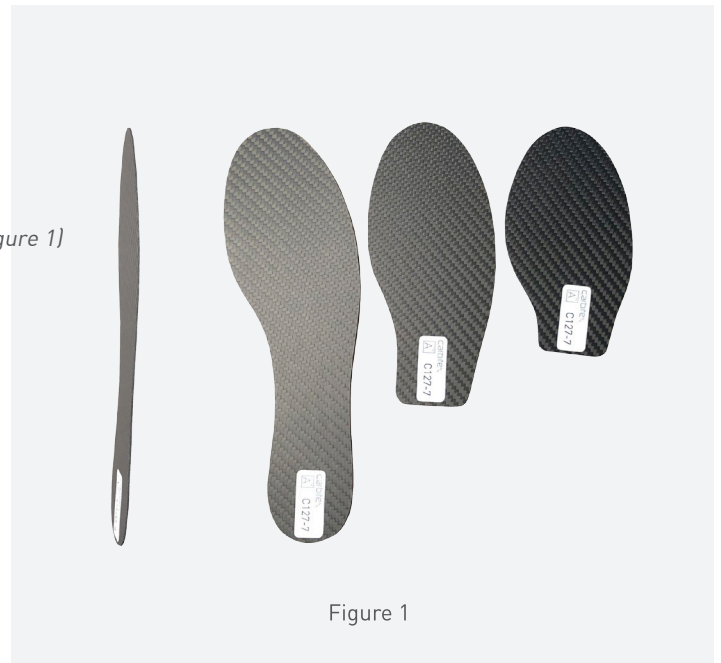


Figure 1

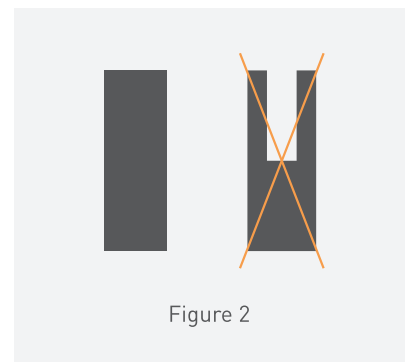


Figure 2



Figure 3: Fiber Orientation perpendicular to flex zone

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NESTING EXAMPLE

