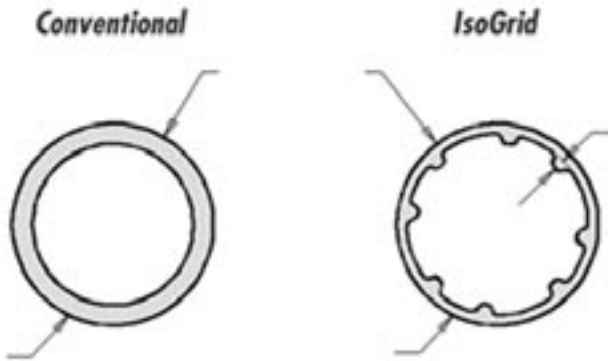
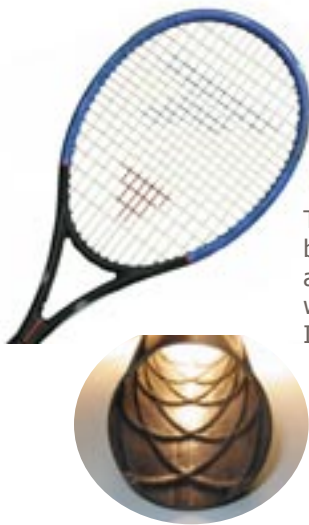


Carbon Reinforcing Web

How can I reduce weight while maintaining strength and stiffness?



The IsoGrid cross section above illustrates the decrease in thickness and therefore weight that can result with the use of IsoGrid. Strength-to-weight ratio can improve by 10% or more.



This tennis racquet became 20% lighter and 10% stiffer with the addition of IsoGrid.



Arrows with IsoGrid are stiffer so vibration is reduced and the arrows fly straighter.



DETAILS

Designers often trade off weight for performance, particularly in sporting goods applications. IsoGrid provides a way to reduce weight and maintain or improve performance. In one application, tennis racquets became 20% lighter and 10% stiffer with the addition of IsoGrid.

Adding IsoGrid to a system provides stiffness in the areas where it's most needed. The frequency of the grid and diameter of the strands can all be varied along the length of the tube to create the optimum structure for the application. Applications that have thin wall sections relative to their internal diameter benefit the most from the addition of IsoGrid. IsoGrid can be applied to extremely small diameter parts such as a fishing rod.

Making an IsoGrid part has two steps. First, a mesh is created from tows or strings of resin-impregnated carbon fiber which have been over-braided with a fine Kevlar mesh. In the second step, this web is adhered to the inside of the tube by inflating a bladder to exert pressure. With a plastic or composite part this mesh can be co-molded to make an integral rib structure.

IsoGrid has found a home in a wide range of applications including:

- Bike tubes
- Golf Clubs
- Kayak paddles
- Sail boat spars
- Archery arrow shafts

The addition of IsoGrid adds approximately 10% - 20% to the cost of your existing tube. The system can be licensed from VyaTek for production in your own factory. It can be applied to a variety of materials including metals.

DesignAid samples are provided by VyaTek Corporation. They can be reached at 480.998.2046. Check the database (<http://www.inventables.com>) for more details.