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Introduction to Pyramid CC Product Line

High Strength Composite and Hybrid material

Pyramid CC consists of four basic high strength PEEK/carbon fiber composite systems. The basic technical differentiation is that these are PEEK resin matrix filled with various type of carbon fiber reinforcement.

1. Pyramid CC100 is chopped carbon fiber (1/4" or so to 1/2") reinforced, feed material can be in fiber bundles, chopped tapes or other irregular chopped fiber forms. Typically used as reinforced structural components such as medical instruments.

2. Pyramid CC200 is continuous carbon fiber reinforced, feed material is woven fabric cloth, typically fiber bundles ranging from 3K to 12K and resin composition from 30 to 50 %. Typically used as planar reinforced structural components such as external fixator in medical applications.

3. Pyramid CC300 is long carbon fiber (1/2" or above) which requires a different blending process to incorporate PEEK resin such that it can be molded. Typically used as 3D reinforced structural components in medical and aerospace applications.

4. Pyramid CC400 is continuous unidirectional CF reinforced with cross ply. Typically used as reinforced panels in medical and aerospace applications.

From design perspective, CC200 and CC400 is really better for parts with uniform cross-sectional area such that machining will not breakdown the fiber length and can take advantage of continuous CF reinforcement. Typically this is bi-directional parts that has good resistance to compression, torsion or normal load to part surface. It will not perform well for shear (along surface) or tension normal to fiber direction. Note CC400 should actually be stronger and offer different type of lay up angles. CC200 does have different type of woven pattern and has a fabric/cloth look.

For complex parts, CC100 and 300 will offer better possibility for near net shape with varying cross-sectional areas.

Contact Polymics or visit www.polymics.com for further information.